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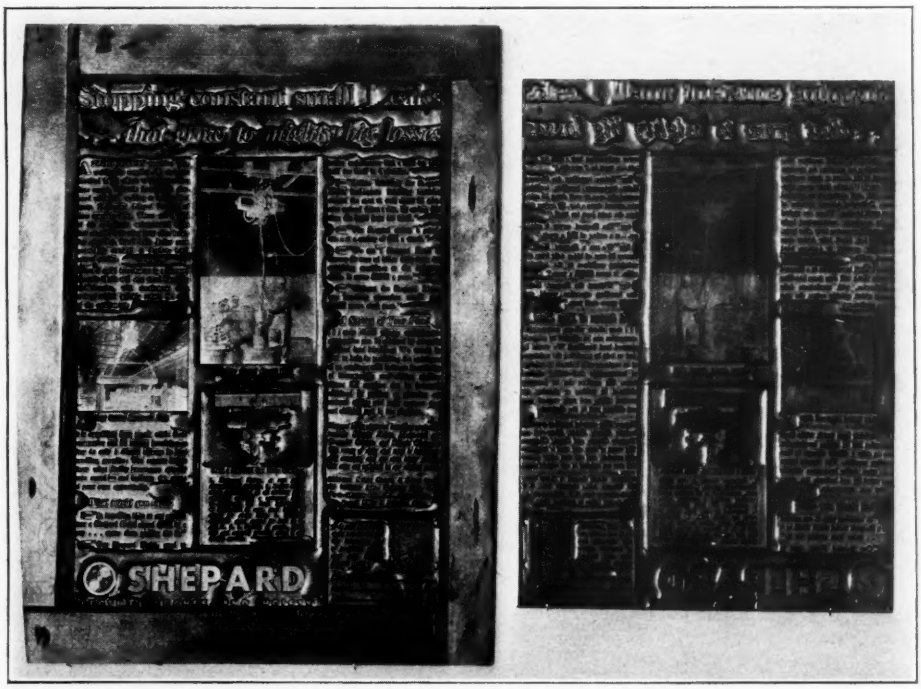
Rubber Printing Plates

Molded Plates — Matrix Materials — Engraved Plates



James H. Matthews & Co.

Matrix **Rubber Plate**

Photographs of Bakelite Matrix and Rubber Printing Plate Made from It

THE adaptability of molded and engraved rubber printing plates in the printing industry is steadily increasing their use. Rubber manufacturers, noting this fact, are engaged in perfecting stocks suitable for the production of both types of rubber printing plates. These manufacturers are convinced that the demand for rubber printing specialties will shortly reach proportions of much interest and importance to the rubber industry.

The present article supplements 2 of previous dates[1] and describes rubber plate making as practiced by matrix molding and engraving.

Molded rubber plates resemble metal stereotypes in that both are by means of a matrix derived from type matter or an engraved original. Selection of the matrix,

[1] INDIA RUBBER WORLD, Sept. 1, 1931, pp. 53-54; Sept. 1, 1933, pp. 29-30, 33.

controls the adaptation of the rubber plate for the printing job.

Bakelite Matrix

Bakelite molding material for making matrices is being used with great success for the production of rubber plates for fine printing by a well-known concern, which supplied the following information.[2]

The Bakelite comes in sheet form approximately 3/16 inch thick and 18 inches by 40 inches, although it can be cut to smaller sizes to suit the customer's needs. Being a true thermoplastic, a material that can be both softened and hardened with heat, Bakelite comes near to being the ideal material for matrix making.

The first application of heat, say up to 250° F., readily softens it in about 1½ minutes to a paste-like consistency. In this soft condition it is placed over the type forms, halftones, or electrotypes and is subjected to molding pressure of approximately 500 to 600 pounds per square inch at a temperature of 280 to 300° F. between the heated platens of an hydraulic press. This further application of heat and pressure has the effect of readily pressing the matrix into the type form and reproducing it with unusual fidelity.

The continued application of heat, say for a period of 6 to 10 minutes, has the effect of hardening the Bakelite sheet to a point where it will not soften again, even on further heating. This results in a matrix which is a very faithful complement of the original in a hard, heat-resisting sheet or matrix. The Bakelite sheet, being made with mineral fillers, has a minimum of shrinkage, say within .002-inch per inch; furthermore this shrinkage is very uniform, an important point in making color plates which must register one with the other.

Being no longer responsive to heat, this matrix can be used repeatedly for the reproduction of rubber printing plates that can readily be molded and vulcanized at temperatures of 280° F. and pressures of 500 to 600 pounds per square inch in a period of 6 to 10 minutes, depending upon the thickness of the plate desired. It is a conservative estimate that the rubber printing plate can be produced, including the making of the matrix, within 30 minutes from the time the operation is started. Thereafter duplicate plates can be produced within 15 minutes each from the original matrix.

Clay Matrix

The usual clay preparation used by rubber stamp makers serves well as matrix material for reproducing rubber printing plates from wood type and wood engraved originals. Plates are cured in such matrices for printing on rough surfaces like cloth, coarse paper, or corrugated paper box stock.

The powdered clay is moistened with dextrine water or similar adhesive, mixed to a soft dough, and spread upon a steel plate as a base. It is retained in a shallow frame to keep it from spreading. In this plastic mass an impression is made from the superimposed type matter between the heated platens of a press. The moisture in the mixture is rapidly expelled by the heat, and a strong matrix results in which a limited number of rubber plates can be molded and cured in the vulcanizing press.

Sheet Lead Matrix

Making lead plates, used increasingly for special printing work, involves 2 distinct processes. In the first a sheet of lead is placed upon the press platen, and on it is put a metal halftone or engraving. The press is then closed under the required pressure, producing a negative of the original in the lead plate. With this negative or mold still on the platen, a rubber compound is applied to it, and the press then closed again. In this second process the rubber is vulcanized by means of heated platens. After the vulcanizing the finished plate is removed ready for the printing press.

Engraved Plates

One important use of engraved rubber plates is for reproducing artists' sketches in color. In this field rubber plates are less expensive than metal ones, and the printed results more satisfactory.

The following on engraving rubber plates is abridged from a practical source.[3]

The knives for engraving rubber are home-made from hack-saw blades. Blades that break easily are the best; while those that bend before breaking are unsuited for engraving purposes.

After the proper blade is selected, it is ground to a narrow point, beginning one inch from the end. The cutting edge is finished on an oil stone. A piece of wood ¼-inch thick then is placed on each side of the blade and bound with adhesive tape to form the handle. It is convenient to have at least 3 such knives, each with a blade of different width, the narrower to cut the short turns, and the broader for the heavier cutting.

The next step is making the pencil sketch required in transferring the design from the drawing to the rubber. This work is done by tracing with a soft pencil the design on a piece of tracing paper securely held over the original drawing. The rubber surface is wiped with a damp cloth to remove any loose dirt, but not the sulphur bloom, which is desirable for making a good transfer.

When the plate is dry, place a little rubber cement on each of its corners and turn the tracing face down on the plate. Rub the back of the tracing with a bone folder, thus transferring the pencil lines to the face of the plate. Remove the tracing and with the aid of a small set of dividers, T-square, and brush, straighten and square the drawing. If the drawing is pictorial, it is best to paint it on with India ink.

The plate is made up of plies of rubber and fabric. In engraving, it is best to cut through the first layer of rubber to the first layer of fabric. Do not cut into this as the upper layer of rubber peels away at this fabric. Always draw the knife toward you, holding it at a slight angle to the side that is to appear in relief in the plates. This position is very important because the bevel acts as a support for the printing surface.

Plates that are undercut or cut straight up and down tend to spread when printing. One can readily tell by the feel of the knife when cutting through the first fabric. Using a small pair of pliers, peel away the surfaces that are not to print. The plate, mounted type high, is used with any other plate or type matter. Separate plates are engraved for the distribution of each color in the design to be printed, thus effecting the required color separations.

On the general subject of rubber printing plates it can be said that they have passed the experimental stage and have proved their value as a measure of economy in the production of good printing, durability in service, and facility of handling by eliminating the weight of metal forms.

Considering that less than ½ of 1% of the 32,000 printers in this country know how to manipulate and print from engraved rubber plates, it is evident that the craft at large must first acquire knowledge of the technique of color in order to be successful in this new art of printing.

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[2] James H. Matthews & Co., 480 Canal St., New York, N. Y.
[3] Process Rubber Plate Co., 610 W. Van Buren St., Chicago, Ill.

Rubber Paving Progress

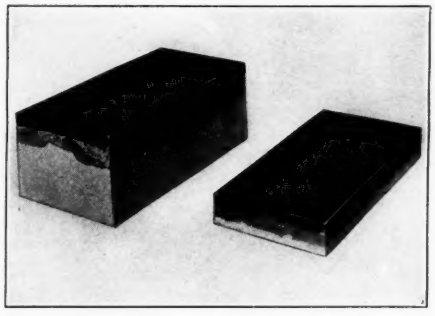
Meeting Modern Road Conditions with "Gaisman" Blocks[1]

THE evolution of roadways from the mud path of yore to the rubber paved street of today is fraught with interest. Constant experimentation has produced many types of materials suitable for this purpose, until now rubber is favored as the most satisfactory. It solves the problems of the road engineer: to provide streets and roads capable of carrying the traffic of his day at a reasonable cost of construction and maintenance, and of a type causing the least inconvenience to frontagers. Certainly rubber eliminates those arch-enemies, noise and vibration: noise that decreases efficiency, and vibration that damages buildings and underground services.

One of the outstanding developments in rubber roadway progress is the paving manufactured under the "Gaisman" patents. The original product was a "cream" rubber block. The first section laid with this was in New Bridge St., London, in October, 1926. The blocks were 10⅜ by 8⅝ inches and 4¼ inches deep. In a district bearing one of the heaviest traffic loads in the world, they are still giving good service.

But time showed that some of the original "cream" blocks tended to fringe at the tread. Besides they were heavy to handle.

Consequently the improved block was devised. Its size is 9 by 4½ by 3½ inches, and it comes with a black untearable rubber tread. These blocks are laid either on a sand or a setting mixture bed, as circumstances require.

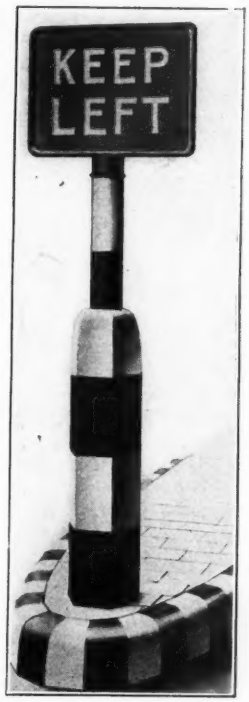


Improved Block with Black Rubber Tread

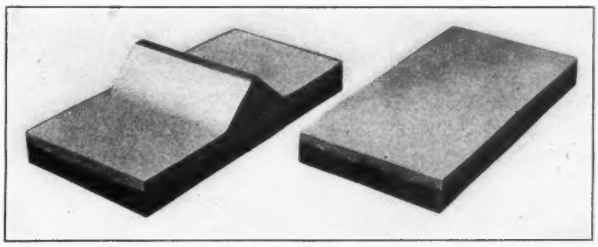
"Gaisman" Improved Block with Cast-Iron Base

The success of this rubber block provoked a demand for a rubber paving block suitable for pedestrian and light traffic. The result is an article embodying the same principles of construction as the road block, but with a less thick tread and cheaper in price. This lighter block is supplied with a concrete base in overall thicknesses of one inch or 2 inches. Available in a wide variety of attractive colors or marbled effects, it can be laid in decorative patterns and designs. Incidentally this same block with a shallower concrete backing provides a superior form of indoor rubber flooring since, as the rubber cap is immovably keyed to the concrete base, it has none of the defects sometimes encountered with ordinary rubber flooring laid on unsatisfactory or damp concrete bases.

With promenades and roads rubber covered it was only natural that curbs receive similar attention. The principles of the "Gaisman" blocks, therefore, were adapted to the construction of a rubber faced concrete curb manufactured in suitably sized units and supplied ready for fixing in position. Three models are obtainable: straightback curb unit; setback unit with or without cut-away for pavement flag; and curb unit cut-away to take the pavement flag. They can be made to any required shape and radius and in any dimensions. The unit commonly used in England is 4½ inches wide, 10⅛ high, with a rubber face 9 inches long, of which 6 inches are vertical while the remaining 3 form a permanent line on the top edge of the curb. The rubber tread may be yellow (road amber), white, or black, and can be alternated to offer the maximum visibility. Then, too, the curb is designed to give a permanent colored line on the edge of the pavement to guide pedestrians and motorists in darkness or bad weather. In case a vehicle should strike one of these curbs, the impact is considerably attenuated by a resilient rubber face, and the possibility of injury or damage is greatly reduced.



Refuge Island with Black and White Rubber Faced Concrete Curbs, White Rubber Paving, and Rubber Covered Bollards



Ridge Traffic Line Block with Amber Rubber Tread

"Gaisman" Plain-Surface Traffic Line Block

Rubber roads and walks and curbs call for rubber traffic lines also; and since rubber colors are lasting, traffic lines of yellow or white and black rubber are increasing in popularity. Two styles, of the same types as the paving blocks, are marketed: one with a plain surface; the other with a hump-like ridge across the center.

Again, the same "Gaisman" principles are applied to covering concrete bollards and posts of all descriptions

[1] Data and illustrations from Universal Rubber Paviors, Ltd., Audenshaw, England.

By courtesy of the Mersey Tunnel Joint Committee. Photo by Stewart Bale.

Laying "Gaisman" Rubber Paving Blocks and Amber Rubber Traffic Lines in the New Mersey Tunnel

with rubber ¼- or ⅜-inch thick. The rubber facing may be in yellow or white, in alternate black and yellow, or black and white bands. Bollards so decorated present excellent visibility to traffic and retain their clean, bright appearance in all weathers. They are strongly built to afford protection to walkers on the street island; and should a vehicle come into contact with a post, the rubber covering of the latter decreases the danger of injury to person and vehicle.

It is interesting to note how all these "Gaisman" patented products can be modified to meet existing conditions. At present the new Mersey Tunnel from Liverpool to Birkenhead is being laid with these blocks in a 2,000 square-yard section. It was found, however, that the headroom in the tunnel necessitated a shallow block. The one used is an exact replica of the improved model, but a shallow cast-iron base was substituted for the concrete or the clay brick base for ordinary street work. The blocks in the tunnel measure 9 by 4½ by 1¼ inches.

Throughout the more than 2 miles of the tunnel will appear a center traffic line of amber blocks with the stout ridge transversal to the line of traffic. This center line will be in units 12 inches square, spaced 12 inches apart. Each half width of the tunnel will be divided by another line of amber plain blocks, 12 by 6 inches, likewise spaced one foot apart.

Special blocks are made for boxstalls for horses and cows. These blocks are manufactured by the same processes as those for paving but are reduced in the thickness of the materials used.

The several principles and processes utilized are covered by United States patents, and the English manufacturer, in view of the rapid progress obtained lately in his country, is prepared to negotiate with American interests for the manufacture and the selling rights of his productions.

Para-Graphs

FINGER PRINTING. A device has been recently patented for transferring finger prints from articles or places where they may be found. It consists of a layer of backing material, a layer of adhesive material including rubber and cottonseed oil applied to the backing.

VULCANIZING PRINTERS' BLANKETS. The surface of printers' blankets must be exceptionally smooth and free from all irregularities. The blankets should be wrapped tightly between polished aluminum sheets on aluminum lined drums and vulcanized in an open steam vulcanizer.

ACIDIC ZINC OXIDE. Rubber is manufactured in many forms and for such wide variety of uses that a zinc oxide suitable in a composition for one purpose may not function to the best advantage for another. Thus rubber compounded with medium acidity zinc oxide acquires tubing and calendering properties superior to those afforded by zinc oxide of practically no acidity. Where Banbury mixing of master batches containing as high as 80% zinc oxide is practiced, low acidity or neutral zinc oxide may be preferred. In mill mixing acidic zinc oxide incorporates as well as the more neutral grades.

GOLF BALL COVERING. Golf balls are covered by pressing balata, first onto one side of the balls placed in the bottom of a multi-cavity mold and after removal of the excess extruded material, repeating the molding process on the opposite side of the balls, using a second multi-cavity mold. The covered balls are then punched from the connecting web and repressed to size them, apply the marking, and consolidate further the cover stock.

CHLORINATED RUBBER. Marketed as Tornesit or Pergut, this material is increasing in importance as a coating for iron pipes, concrete, and wood. This material is no more expensive than the usual good paints and has better adhesive qualities. In addition the non-inflammable films are resistant to water, acids, and alkalies, are electrically non-conducting, and are of special hardness.

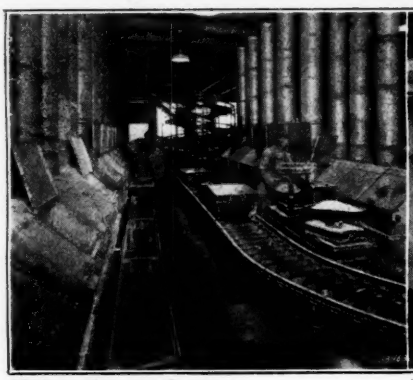
DUPRENE CEMENTS. These products give better adhesion than rubber cement especially for sticking porous materials together because the DuPrene particles appear to penetrate the materials being bonded together better than rubber, thus securing a better anchorage. Also the film of DuPrene that remains after evaporation of the solvent is stronger, tougher, and has shorter "legs" than the film that remains after evaporation of rubber cement.

GAS INFLATING MATERIAL. A pellet composition for inflating rubber balls with gas comprises a solid gas producing substance or mixture together with a small proportion of a stabilizer consisting of a dehydrating agent. The gas producing mixtures are ammonium chloride with sodium nitrite, and a mixture of tartaric acid with sodium bicarbonate or ammonium carbonate. The stabilizers are anhydrous sodium carbonate or sulphate. The pellets are used at temperatures above 212° F.

(Continued on page 40)

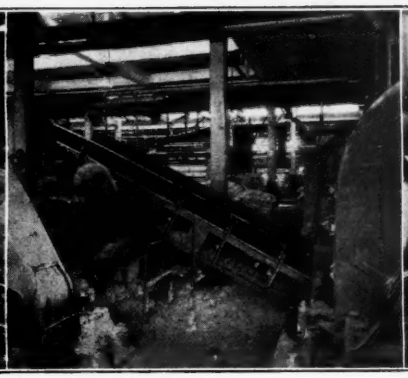
Standardized Conveying for Footwear Plants

David Phillips



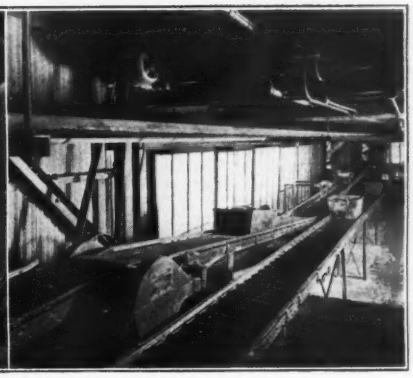
Mathews Conveyer Co.

Fig. 1. Compound Room Conveyer



Mathews Conveyer Co.

Fig. 2. Conveying from a Banbury



Mathews Conveyer Co.

Fig. 3. Batch Box Conveyer

THE application of standardized conveyers to any industry, even under the simplest conditions, is difficult, and manufacturers of materials handling equipment are continually beset with sales-engineering problems which result from the lack of uniformity in the product for which it is designed. There is perhaps no one industry which calls for a greater variety of such conveying equipment than the manufacturing of rubber into its enormous number of useful articles.

The subject of materials handling in such an industry which serves practically every branch of human needs would be much too broad for treatment within the limits of any one series of articles; volumes could doubtless be written covering the progress made even in the past decade. The following brief treatment of the subject will be confined to the use and field for conveyers in the fabrication of footwear, which has as much variety in its processing as any one branch of the rubber industry.

To make no omissions one should theoretically start back at the plantations where nature itself, in carrying out its mysterious laws, operates the first materials handling device as it forces latex slowly to ooze from the slashed bark of a rubber tree into a man-made receptacle. The ensuing processes of coagulation may be overlooked, and we find crude rubber in its sheeted bale or modernized biscuit form ready for the breaking down and compounding operations in the mill room.

Mill Room Conveying

Materials handling in the mill room of a modern factory should completely transport rubber and its compounding ingredients through the various stages in preparation for changing the batch into a sheet of relatively thin plastic material. Irrespective of what form the compounded rubber may take at the end of its factory processing, such as tires, footwear, or mechanical goods, the mill rooms of all branches of rubber manufacturing have very much in common.

Figure 1 shows a worker busily engaged in loading his tote or batch box with the correct, measured amounts of the chemical ingredients needed for the particular kind of stock being prepared. The box rests on a gravity roll type of conveyer. The chemicals themselves are stored in overhead bins or chutes above the vertical conveying tubes shown and are loaded into batch boxes in correct, weighed proportions as they await a full load. After all the parts of the formula have been added, the box is given a sharp push; then it rolls along a track, untouched by human hands or man-made power, down a gradually sloping path leading to the mixing mill. Empty batch boxes are returned in like manner.

In the case of enclosed mixers, after the batch box has been emptied of its contents into the hopper along with a slab of broken down rubber, the masticated stock is discharged at floor level on to a power driven, flat sectioned, or pallet type of conveyer that can lift its load at a maximum angle of approximately 25° into the roll bight of a sheeting mill. An electrical stop and start control is generally conveniently located near the sheeting mill operator so that he may advance the compounded stock from the mixer as needed for a steady flow of production.

Figure 2 shows such a conveyer arranged to carry material from the enclosed mixer, visible on the right, to the top of the sheeting mill, pictured at the left in the illustration. The advantages of such a conveyer hook-up are obviously gained through savings in direct labor costs as waiting time and back-breaking toil have been virtually eliminated.

Besides the above conveyers are some special plans for manufacturing which call for flat or pallet type conveying between cracking and sheeting mills, warming mills, and

calenders. In many other places they also may be found where brain has overcome brawn in order that more tonnage per day, per man, may be moved about with less physical exertion.

The sheeted rubber stock is generally conveyed by flat belts from the sheeting or warming mills to the calenders when needed for immediate use. In footwear manufacture the stock next is calendered or thinned to the proper thickness gage for the outsoles or gum uppers; after which action it is led on to still another flat canvas belt for transportation to other departments where it is stored preparatory to cutting with style patterns.

Calender rolls require pre-heating by steam to avoid waiting time between roll replacements, and as they are very hot and much too bulky for physical handling, a simple system of single or mon-o-rail track is often installed between the warming station and the calenders. With such a system in operation a relatively small calender group can operate speedily and with less danger from accidents when handling such cumbersome equipment. For complicated floor layouts these single-track-type of overhead conveying devices have many labor saving ideas incorporated in their design such as power lifts, lowering attachments, and rotatable switching arrangements.

The gravity type of conveyer, usually made with ball bearing rolls to reduce frictional loads, is frequently supplemented with "booster" units or small, power driven, interlocking lengths which can by-pass or lift a batch box of stock to a higher level for continuing its journey. This type of belt is often used in connection with enclosed mixers, and in this respect they are very valuable as all elevator expense such as waiting time and handling costs are eliminated. Figure 3 shows the batch box being carried to a higher level and about to be discharged on to another set of gravity rollers which are to coast it along in "free wheeling" to its destination.

Mill room workers at best are subjected to heavy labor and a dust laden atmosphere, but modernized materials handling has eliminated to a large degree much of the confusion and danger resulting from loading and hand "toting" the compound boxes about the room. As to costs, some executives and engineers feel that if a mill room conveyer can be estimated to pay for itself within 3 years, or less, it is good business to go ahead with such propositions. Perhaps the reason for such a relatively long term being taken for a safe period to replace the initial expenditure is due to the fact that fundamentally the mill room is subjected to fewer changes in types of equipment as styles vary, than other factory departments.

Preparing for Shoe Making

When following the process of rubber shoe making out of the mill room and into the many different branches which contribute to the assembling of the final product, one immediately runs into a highly specialized condition. Conveyers are found everywhere, but their lack of standardization is striking; anything may be found from an expensive, power driven mechanism of intricate design manned by a large crew of workers to a plain, flat, badly frayed, canvas belt, sloppily turning about old wooden rolls and tended by a lone operator.

Perhaps the most standardized conveyer equipment used in the preparation of parts for shoe making may be found allied with the cementing operations which are performed on small rag parts, insoles, outsoles, and other components of rubber boots and shoes. Modern methods call for machine cementing by passing the parts to be coated through revolving rolls which apply a single or double coat of naphtha or latex cement as the case may be. After coating, a drying conveyer is generally used to increase tackiness. Such a conveyer belt efficiently to fulfill its purpose must have an open-work bottom in the case of double coated work and is usually made of interlocking steel wire construction for drying the under side of the parts. It is frequently necessary to make such conveyers of great length depending upon the viscosity of the cementing medium. The freshly cemented parts are deposited on to the belt as they emerge from the coating rolls and are carried upward along the ceiling to receive the drying benefit from the heated air currents which rise to the top of the room.

After a run of sufficient distance for satisfactorily drying the shoe parts, and at a fairly slow rate of speed, the belt again dips downward and reverses its direction at a point adjacent an operator's table. The air dried parts are discharged at this point and are stacked or sorted ready for servicing the shoe assemblers.

Shoe parts which require only a single coat of cement, such as insoles, are generally fed on to a flat canvas belt and are carried upward for drying as in the case of the double-coated work. Occasionally one finds ingenious installations equipped with transfer units mechanically so constructed as to return the dried part to the same starting point without human handling. Each plant has its own problem in this respect, and at best one can only say that flat canvas belts work better for single coated work and the open-mesh or pin type for double. Figure 4 pictures a commercial machine for cementing small parts and shows a section of the drying conveyer belt attached and leading to the rear.

When flat belts are used for the pre-fitting of parts, much congestion and time are saved in assembling. This saving is due to the comparative ease with which a large number of similar parts can be deposited at one assembling point instead of at a number of widely scattered locations. It is a simple matter to add a few parts here and there while conveying on a steadily moving belt that is pacing the workers to their best efforts.

Very little progress has been made in conveying molds for footwear work. The tire molds in the companion industry, being very heavy and cumbersome, made their conveying a matter of vital importance. Footwear molds, on the other hand, for use in heel and sole work are relatively light in construction, and as they are usually handled by men of rugged physique, very little progress has consequently been made for moving them about by modern methods. There is practically no branch of the footwear manufacturing business which has less conveying equipment than molding departments.

Shoe Assembling

Conveying for assembling rubber footwear is quite generally used by many modern manufacturers throughout the country. Endless chains with proper last receiving gadgets attached at evenly spaced intervals are mounted in suitable frames and circulated at a speed so designed that workers alongside at carefully balanced locations in the plan for production can do their bit by adding the interlocking part as the shoe assembling progresses to completion. Each particular producer of footwear has his own ideas as to what constitutes the best type of last fixtures and a means of mounting them so that shoe making operations may be carried out without removing the last or shoe form from its supporting medium. To the uninitiated it is almost unbelievable that a sticky, unwieldy, gum upper can be accurately laid on to a tacky, coated lining as it is carried along on a last attached to a moving chain.

There is apparently no standardization throughout the footwear industry in the construction of assembling con-

veyers. It would perhaps be correct to assume that in each of the leading competing plants one would find standardized conveyers for that particular plant; probably in no case, however, would different producers have the same ideas incorporated for frame design, speed control, or for universally mounting a shoe form supporting means. This lack of apparent standardization is doubtless due to patent complications which prohibit the use of all the best features of each installation by every manufacturer.

Packing and Shipping

As the articles of footwear near the end of their production journey, they follow much the same methods as other manufactured goods through to shipment. All shoes or boots have to be removed from the lasts upon which they have been built and are usually stripped from these forms by hand and deposited upon some kind of flat belt conveyer. If possible, the lasts are returned to a storage point by the same method.

Once on a packing belt, footwear can be handled for inspection purposes and be readily checked off against the orders listed for daily shipment. Such a flat belt conveyer carries the completed footwear to workers stationed alongside who add the necessary labels, tags, lacings, or other trimmings which make up the last chapter in the manufacturing cycle before boxing for shipment. Gravity rolls in the form of a conveyer such as shown in Figure 5 are next used to carry the packed box of goods to a loading platform for trucking to warehouse or dealer.

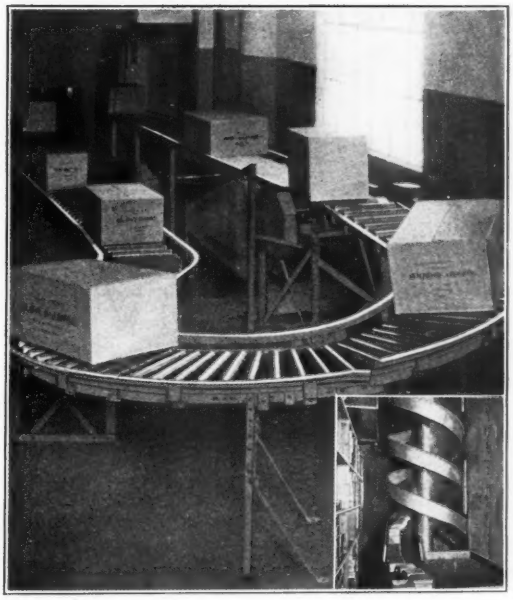
Miscellaneous Handling Equipment

Scattered here and there throughout a shoe making plant one finds all manner of small, flat belt, power driven conveyers serving for squeezing assembled cemented parts together as they are passed under heavy joining rolls. There are also belts leading gum sheets through cutting knives and a large variety of other fitting operations.

Elevators in their early days were heralded as a boon to mankind. Truckload upon truckload of fabricated materials was moved by hand in and out of them for transporting above or below as the process demanded. Lasts or shoe forms, for example, were carried about in bags or boxes for many years; today, however, one finds conveyers or chutes serving in many parts of the factory

United Shoe Machinery Corp.

Fig. 4. Cementing Machine



Mathews Conveyer Co.

Fig. 5. Packed Goods Conveyer

between the places where shoe forms are used and the storage bins.

Modernized belt conveying of such parts has decreased costly elevator congestion and left them open for other valuable purposes. Shoe cars or heater cars no longer require large numbers of men to move them about as they carry their loads of footwear from the assembling to the curing stage in the process. At every turn one finds that labor and space saving has resulted from the intelligent use of conveyer systems.

The conveying network for materials handling which is now spread over a large plant is very similar to that of the innumerable small railroads throughout the country. To keep down the cost of individual operation they have allowed themselves to become absorbed by larger and more standardized transportation units. Their example might well be followed in rubber plants as such a great variety of conveying equipment exists that any attempts at standardization would be a step in the right direction.

The millennium for any manufacturer would be a conveying system which could receive raw materials at one end and discharge packed goods untouched by human hands at the other. Fanciful as this idea appears, it is nevertheless a fact that great strides in conveying have already been made in the handling of rubber parts for the fabrication of footwear. It appears, furthermore, that increased profits from lower handling and repair costs are still possible through standardization of the many different systems now in existence.

Synthetic Resins

The synthetic resin industry is still in its infancy. The products have been used only to replace such substances as shellac, asphalts, rubber, and celluloid in the manufacture of molded articles and for coating materials to be used in place of shellac and varnish gums. The greater part of the output of the industry is still destined for the molder and varnish manufacturer.

Balata

Production — Grades — Processes — Industrial Uses

William P. Earle, Jr. [1]

BALATA is the coagulated latex from *Mimusops globosa*, a tree found wild abundantly in the forests of northern South America. The trees may be scattered through the forest or may occur in groups. The tree has a straight trunk growing from 75 to 125 feet in height and 4½ feet in diameter. The limbs branch near the top, thus giving a long trunk for bleeding the latex. Thirty to 40 years are required for a tree to reach maturity.

Sheet Balata

Sheet balata comes from British, French, and Dutch Guianas, which began exportation in 1880. The collection of balata is carried out under licenses issued by government, and concessions must be paid for in advance. The administration and collection of balata in British Guiana is prescribed according to official authority.[2]

"Bleeding is done by means of a cutlass; the incisions are 10 inches apart and arranged in a feather-stitch pattern. Bleeding is commenced at the base of the tree and extends to the main fork, the branches of the tree are seldom bled. The milk is collected in a calabash, placed at the bottom of the tree and held fast by inserting its lip between the bark and wood of the tree. The first bleeding is done while the collector is standing on the ground. The parts of the trunk higher up are bled by the aid of a ladder roughly constructed in the forest, while the highest parts are frequently reached by the aid of a rope for climbing."

The latex is poured into a shallow tray where it is coagulated by evaporation, and the gum is removed in successive sheets from the top to the bottom. The yield varies up to certain limits according to the age and size of the tree. Speaking generally 5 pounds of dry gum per tree is considered a good yield.

For shipment, the separated dry sheets are baled, wired under pressure, and bagged ready for market.

Air-dried sheet balata contains the following average percentages:

Gutta	39.5
Resin	42.2
Moisture	6.1
Impurities	12.2
	100.0

Balata Block

Venezuela balata block originates in the valley of the Orinoco in South America. It is here found and collected in low-lying territory known as the Territorial Delta. The Orinoco River, about 100 miles in from the sea, is divided into 5 great channels, which fertilize the heavily forested country, unexplored except by the Indians in search of balata.

The concessions, as in Guiana, are granted by the Venezuelan government, and great care is exercised that those receiving the concessions are financially responsible and have capital sufficient to fit out the exploring expeditions. The trees grow along the edges of the rivers. Those growing in the interior of the forest are not exploited, owing to excess cost of transportation from the forest; also the Indians who do the collecting are lazy and often cut the trees down. The collectors start out in January and return with the harvest by April. A second crop is procured from June to September.

After the trees are felled a row of calabashes is placed alongside each tree; the bark is scored, and the milk or latex is caught in the calabashes. It is boiled on the spot until it coagulates, and is then pressed and prepared in blocks or planchas.

San Felix, above Ciudad Bolivar, in Venezuela, is the principal port for balata. At Ciudad Bolivar the blocks or planchas are cut in two by the natives, by means of knives, then are examined for purity, and finally graded. The 3 grades are meaty, seedy, and bluish. The meaty quality is a really prime quality, smooth, and uniformly a light greyish brown color, and quite clean. The seedy quality shows bark mixed with the coagulated latex. The bluish color is caused by the clay or soil along the bank where the tree has been felled, being mixed with the latex. This mixing is usually done by the collectors through carelessness or purposely. A fair average quality contains from 40 to 50% meaty, 30 to 40% seedy, and the balance bluish. The percentages of each vary with each season's crops.

The planchas are brought to San Felix in small boats or ox-carts over land and sometimes by porters carrying individual blocks. They are then shipped to the large importing and exporting houses in Ciudad Bolivar. These houses have controlled the output of balata for years without successful foreign competition.

Balata Production

No attempt has yet been made to produce balata on plantations. The wasteful native methods of collection have denuded the trees in the more accessible wild forest regions and now call for new sources to be developed.

Since the beginning of the present century, production has been steadily increasing. The production of balata is shown in Table 1 in average annual poundage by 4-year intervals from 1906 to 1933 inclusive.

TABLE 1. BALATA PRODUCTION

Period	Pounds (Annual Average)
1906 - 1910	5,990,000
1911 - 1915	7,365,000
1916 - 1920	9,220,000
1921 - 1925	9,986,000
1926 - 1929	9,557,000
1930 - 1933	6,717,000

Table 2 shows annual exports of balata by countries of origin from 1924 to 1933 inclusive.

[1] President, Earle Bros., 66 Broad St., New York, N. Y.
[2] "Rubber and Balata in British Guiana in 1914." C. K. Bancroft, Georgetown, Demerara.

TABLE 2. ESTIMATED WORLD EXPORTS OF BALATA—1,000 POUNDS

	Panama	Colombia	Venezuela	British Guiana	Surinam	French Guiana	Peru	Brazil	Total
1924..	73	376	2,363	1,370	1,225	1,009	3,668	879	10,963
1925..	224	1,056	2,776	905	1,515	963	3,571	1,403	12,413
1926..	95	914	1,317	597	1,036	430	4,515	2,309	11,213
1927..	255	783	1,194	747	1,431	447	2,128	2,782	9,767
1928..	467	600	1,015	648	1,162	235	1,780	2,289	8,202
1929..	297	303	812	600	983	135	1,776	4,140	9,046
1930..	243	616	1,030	995	1,075	188	1,461	4,580	10,188
1931..	15	140	327	200*	760	50*	938	5,030	7,460
1932..	7	168	450*	100*	212	25*	355	2,766	4,083
1933..	2	40*	50*	50*	500*	...	477	4,017	5,136

*Estimate. The above statistics from the Department of Commerce, Rubber Section, were prepared from the official export statistics of the countries named, except those marked as estimates. Estimates were prepared from United States import statistics.

Commercial Grades

Table 3 lists the commercial qualities of balata from South American sources, arranged according to their average gutta and resin content and melting points.

TABLE 3. COMMERCIAL GRADES OF BALATA

	% Gutta	% Resin	Melting Point F°
Dutch and British sheet	43	57	140
British block	42	..	..
Venezuela block	36	..	..
Colombian block	35	..	..
Brazilian Manaos block	35	..	..
Brazilian white block	25	..	..
Peruvian refined block	25	..	..
Peruvian refined sheet	22	..	..
Peruvian ordinary block	18	..	40

Low-Grade Guttas

The balata supply is supplemented by a number of low-grade guttas. These are discussed in a recent article[3] in which the author remarks, "These gums are utilized in 3 ways: as a resin-gutta gum, as gutta freed from resin, and as resin."

The gums referred to are chiefly Gutta Siak and Gutta Soh. These are processed essentially the same as balata, and their yield of gutta is used for the same purposes.

Manufacturing Processes

The manufacturing processes applied to balata are cleaning, mixing, calendering, molding, deresinating, cement making, spreading, and impregnating, according to the requirements of the application of the material to different purposes.

WASHING. Preparatory to washing balata it must be cut into moderately small pieces and softened in warm water to render it tractable. In this condition it can be sheeted through a fluted 2-roll wash mill piped for temperature control of usual form, using a stream of warm water to soften the material and carry away the earthy matter, bark, etc., from the gum.

MIXING. Balata compositions are made either with or without heat according to the purposes they are to serve. The compounding ingredients used do not comprise sulphur or other vulcanizing agents because balata is not vulcanizable; therefore the materials utilized are dry inert powders such as those commonly found in rubber work. For some purposes blends are made of balata with cheap guttas and waxes.

The hot process of making a balata compound consists in working the ingredients into the balata contained in a steam jacketed dough mixer. The balata softened by the heat readily absorbs the dry powders by the masticating action of the revolving blades of the machine.

Mixing by the cold process is effected by solution of the balata in benzol, naphtha, carbon bisulphide, etc. in a churn with paddles such as used for making rubber cement.

MOLDING. Balata, being plastic when warm, can be readily shaped into any desired form by confining it under pressure and allowing it to cool in the mold. Probably the commonest form of balata molding is that for golf ball covers, which takes the form of hemispheres applied in a mold over the wound ball. Heat is used to soften the balata cover, and heavy pressure to cause the softened adhesive cover to adhere to the surface of the ball and unite the joint between the cover halves into an integral whole.

DERESINATING. For golf ball covers it is essential to deresinate balata to give it the maximum toughness for service. Deresinating can be accomplished readily by dissolving out its contained resin by means of high boiling point naphtha. The process can be conducted by soaking shredded balata in successive portions of the solvent in a series of containers. The shredded balata is soaked successively in hot naphtha in each container, being transferred step by step until removed from the last one and the dissolved resins filtered off or removed by centrifuging. Balata thus treated is essentially pure tough gutta suitable for molding into covers for golf balls.

BALATA WATERPROOFING. Tent cloth, jute, and various fabrics are waterproofed while stretched by dipping them into a solution of balata in carbon bisulphide or trichlorethylene including a filler such as zinc oxide, fossil flour, or asbestos powder for about 1½ minutes, then draining the excess solution, and evaporating the solvent.

Balata Manufactures

GOLF BALL COVERS. By far the largest outlet for balata is the manufacture of covers for golf balls. The grades selected for this purpose range from those containing 28% gutta and 60% resin to those with 42% gutta and 50% resin. The stock varies from crude in blocks to refined in blocks and sheets. The form preferred depends largely on the mechanical facilities available in the golf ball plant. Those not equipped with refining machinery use refined block. Others use sheet and save the expense of installing block cutting machines. In general most manufacturers favor always that grade of balata to which they are fully accustomed. Market grades tend to disappear gradually; thus from time to time manufacturers are obliged to adopt newer grades of which the production has become established and guaranteed in the primary market.

Other applications of balata exist in industry although of minor importance to golf ball covers in the amount of balata consumed. The following are representative of these uses.

ADHESIVES. Adhesive balata preparations are used for medical tape, plasters, and packs. The stock required is gutta or balata of medium melting point, that is to say, fairly low in resin and high in gutta content. It may be prepared either by dry warm mixing or so-called hot process of balata working or by cold solution in an ordinary dough mixer or cement churn.

The following list includes the liquid materials used for the cold-process preparation of balata adhesive stock.

Acetone
Alcohol
Ammonia
Aniline
Benzol
Carbon bisulphide
Sulphuric ether
Turpentine
Weak caustic alkali

Stoneware or lead lined vessels are recommended for putting the material into solution to avoid possible action of the liquids on the material of the apparatus.

Balata adhesive for spreader application on paper and rayon should be prepared from balata low in gutta and high in resin, compounding it on warm rolls with vege-

[3] "Resin-Gutta Gums." I. Torrence Gurman, INDIA RUBBER WORLD, Dec. 1, 1933, pp. 31-32.

table waxes and vegetable oils. The same type of composition is applicable for impregnating cotton drilling with balata for automobile topping. For this work the color is not considered a factor, but the stock must be clean, viscous, quick drying, and produce a good bond with the fabric.

CEMENTS. There is a rather limited trade in balata cements for such purposes as the attachment of labels and sweatbands in hats and for making joints in leather work where heat will not be encountered in service. For cementing purposes balata is required of high gutta content, low in resin, good swelling quality, medium melting point, and quick drying after solution. The solvents commonly employed are benzol, naphtha, or carbon bisulphide. In these the balata is reduced to desired cement consistency by agitation in an ordinary paddle churn.

SHOE BACKING CLOTH. Lightweight fancy leathers and fancy fabrics of satin, brocade, suede, etc. used in the manufacture of ladies' shoes require to be backed with strong lightweight cotton fabrics to sustain the strains of lasting and wear. Balata composition serves as the binding material to bond the backing cloth securely to the goods being backed. The consumption of shoe backing cloth amounts to millions of yards annually, but is, however, a rather seasonal business.

The composition used consists of balata fairly low in gutta content and high in resin. It must be washed clean, be light of color, and of relatively high melting point. It is blended intimately with a washed gutta of still higher resin, and lower gutta content, and very low melting point. Mineral fillers and waxes complete the composition blended by mastication in an internally heated dough mixer. This composition is applied to the cloth by either of 2 methods: namely, by spreader or by calender.

A spreader for balata work comprises a simple hard rubber or steel roll without internal heat. It may be 12 inches in diameter by 48 inches face. A doctor blade electrically heated or steam jacketed runs the length of the roll adjustable for contact with the top of the roll. The composition banked on the roll against the blade is spread on the backing cloth as both pass between roll and doctor blade. The coated fabric passes forward over the spreader table and is rolled on a mandrel 30 feet distant ready for use.

CALENDERED TISSUE. Calender coating of backing cloth is done on a 3-roll even motion calender in manner similar to applying a skin coat of rubber to definite gage. Similarly if balata is to be marketed as tissue it is calendered to a very light gage and marketed in rolls 40 inches wide weighing 10 to 11 yards per pound. Balata tissue is employed for attaching light leather skins to plain backing cloth by hand ironing the skins against the cloth with tissue between skin and cloth.

OIL VALVES. Stock mixed by the following formula was formerly used for pumping petroleum products. No record exists as to its durability in that service. The mixing is interesting as representing actual practice of earlier years.

SOFT OIL VALVE

Fine Para	21.65
Sheet balata	21.65
Asbestine	21.60
Fine plumbago	10.80
Litharge	10.80
Bone black	10.80
Sulphur	2.70
	100.00

GEM DUCK. In addition to backing cloth the shoe trade is supplied with spread coated drill known as Gem Duck. The following formula was formerly used for this purpose, although now probably superseded by newer mixings.

GEM DUCK STOCK

Low grade balata	70
Pontianak	10
Fossil flour	20

This mixing made into a dough with naphtha can be applied by an ordinary spreading machine. The fossil flour functions only as an inert drier or filler.

BELTING. Balata belting for power transmission is made by compiling plies of belting duck construction impregnated with balata composition and consolidating and stretching the construction in an hydraulic press. Balata belting is superior to vulcanized rubber belting in its strength of friction and freedom from absorbing moisture. It can be used only at temperatures under 120° F. because it softens at higher temperatures while rubber belting does not. However balata belting is favored for axle lighting power transmission. This use requires a powerful endless belt operating outdoors under the body of a railway car. Endless rubber belt requires vulcanizing in the field; while balata belt needs no vulcanization and is thus readily adaptable for field work.

Para-Graphs

(*Continued from page* 34)

LATEX SPRAYED FILMS. Living plants are protected during winter storage, shipment, and transplanting by coating them with rubber latex applied by spraying or by immersion of the plants. Loss of moisture is thus prevented, and the plants kept alive. Latex films are also largely used to protect the enamel finish of automobiles during shipment. In this case the film is sprayed sufficiently thick to permit salvaging the rubber by stripping it from the finished surfaces of the car by the dealer.

DISPLAY FORMS. Hollow rubber forms shaped as arms, hands, legs, and feet are provided with air valves and inflated for displaying gloves, stockings, garters, and shoes in life-like fitted effects.

MULTI-COLOR JAR RINGS. A triple extrusion machine has been devised for extruding jar sealing rings in different colors. This action is accomplished by the use of a novel form of die head adapted to form tubing with an exterior longitudinal bead. The body of the tubing is of one color while the head and the complementary portion are a different color so that when rings are cut from the tubing, they will be of one color with a tab or lip part having a target-like figure with a field of one color and a center of another.

TENNIS BALL SHELL TRIMMER. The improved machine designed to hold securely and accurately the hemispheres that form the hollow ball is an upper and lower turret seating device. The operator places the shells on the seats provided in the lower turret where the fins are trimmed as the turret turns, and the trimmed shells are transferred successively to the concave seats in the upper turret where they are held by suction during the operation of buffing their edges. After this operation they are ejected from the machine.

SPRAYING SOLUTIONS. Benzene-rubber solutions are rendered capable of being sprayed by diluting them to the approximate viscosity of water by the addition of benzene, benzol, or the like, and adding protective colloids or emulsifying agents such as soaps, mineral or vegetable oils, or fats. According to an example, a mix consisting of 55 parts of rubber, 35 parts of zinc oxide, 3 parts of sulphur, 1·5 parts of an accelerator, and 5·5 parts of an oil is dissolved in 4 to 5 times its weight of solvent.

Code of Fair Competition

For the Reclaimed Rubber Manufacturing Industry

TO EFFECT the policies of Title I of the National Industrial Recovery Act, the following provisions are hereby established as a Code of Fair Competition for the Reclaimed Rubber Manufacturing Industry, and shall be the standards of fair competition for this Industry and binding upon every member thereof.

ARTICLE I

A. Definitions

SECTION 1. The term "Reclaimed Rubber Manufacturing Industry" or "Industry," as used herein, includes the manufacture for sale of reclaimed rubber together with such related branches or subdivisions as may from time to time be included under the provisions of this Code by the President or the Administrator, after such notice and hearing as he may prescribe.

SECTION 2. The term "member of the Industry" includes, but without limitation, any individual, partnership, association, corporation, or other form of enterprise or any subsidiary or affiliate of the same engaged in the Industry, either as an employer or on his or its own behalf.

SECTION 3. The term "member of the Code" includes any member of the Industry who shall expressly signify assent to this Code.

SECTION 4. The term "employe," as used herein, includes any and all persons engaged in the Industry, however compensated, except a member of the Industry.

SECTION 5. The term "Association," as used herein, means the Rubber Reclaimers Association, Inc., a nonprofit-sharing corporation organized under the laws of the State of New York.

SECTION 6. The term "President," "Act," and "Administrator," as used herein, mean, respectively, the President of the United States, Title I of the National Industrial Recovery Act, and the Administrator for Industrial Recovery.

SECTION 7. Population for the purposes of this Code shall be determined by reference to the latest Federal Census.

ARTICLE II

A. Administration

SECTION 1. There is hereby constituted a Code Authority, consisting of 3 persons, who shall be selected by a majority vote of the members of the Code in numbers and in volume of sales, excluding any sales made to subsidiary or affiliated companies. The Administrator, in his discretion, may appoint not more than 3 additional members (without vote) to represent the Administrator without expense to the Industry.

(a) One alternate shall be selected for each member of the Code Authority, with full power to vote in the absence of his principal. Such alternates shall be selected in the same manner as their principals.

(b) No 2 members of the Code Authority nor their alternates shall be affiliated with any single member of the Industry.

(c) In order that the Code Authority shall at all times be truly representative of the Industry and in other respects comply with the provisions of the Act, the Administrator may provide such hearings as he may deem proper; and thereafter if he shall find that the Code Authority is not truly representative or does not in other respects comply with the provisions of the Act, may require an appropriate modification in the method of selection of the Code Authority.

(d) Should any matter come before the Code Authority which specifically involves acts, conduct, or the interest of a member of the Industry with which any member of the Code Authority is associated, or employed, such member of the Code Authority shall be disqualified to act in such matter. The designated alternate shall act in place of the disqualified member of the Code Authority.

SECTION 2. Each trade or industrial association directly or indirectly participating in the selection or activities of the Code Authority shall (a) impose no inequitable restrictions on membership, and (b) submit to the Administrator true copies of its articles of association, by-laws, regulations, and any amendments when made thereto, together with such other information as to membership, organization, and activities as the Administrator may deem necessary to effectuate the purposes of the Act.

SECTION 3. The Code Authority shall have the duties and power prescribed in this Code, including the following:

(a) To insure the execution of the provisions of this Code and provide for the compliance of the Industry with the provisions of the Act.

(b) To adopt by-laws, rules, and regulations for its procedure and for the administration and enforcement of the Code. Any such by-laws, rules, and regulations shall be reported to the Administrator immediately upon adoption thereof.

(c) To obtain from members of the Industry such information and reports as are required for the administration of the Code, and to provide for submission by members of such information and reports as the Administrator may deem necessary for the purposes recited in Section 3 (a) of the Act, which information and reports shall be submitted by members to such administrative and/or government agencies as the Administrator may designate, provided, that nothing in this Code shall relieve any member of the Industry of any existing obligations to furnish reports to any government agency. No individual reports shall be disclosed to any other member of the industry or to any other party except to such governmental agencies as may be directed by the Administrator.

(d) To use such trade associations and other agencies as it deems proper for the carrying out of any of its activities provided for herein, provided that nothing herein shall relieve the Code Authority of its duties or responsibilities under this Code and that such trade associations and agencies shall at all times be subject to and comply with the provisions hereof.

(e) To make recommendations to the Administrator for the coordination of this Code with such other codes as may be related to the Industry.

(f) To secure from members of the Code an equitable and proportionate payment of the reasonable expenses of maintaining the Code Authority and its activities.

(g) To cooperate with the Administrator in regulating the use of any NRA insignia solely by those members of the Industry who have assented to and are complying with this Code.

(h) To recommend to the Administrator further fair trade practice provisions to govern members of the Industry in their relations with each other or with other trades or industries.

(i) If the Administrator shall determine that any action of the Code Authority or any agency thereof may be unfair or unjust or contrary to the public interest, the Administrator may require that such action be suspended to accord an opportunity for investigation of the merits of such action and further consideration by the Code Authority or agency pending final action which shall not be effective unless the Administrator approves same or unless he shall fail to disapprove same after 30 days' notice to him of the intention to proceed with such action in its original or modified form.

SECTION 4. The Association is hereby designated as the agency for the collection of statistics, data, reports, and information under the Code.

(a) Every member of the Industry shall prepare and file with the Association, at such times and in such manner and form as the Code Authority may designate such information and reports pertinent to the operation of this Code as the Administrator may from time to time require. Such reports and/or records may be either sworn or unsworn as required.

(b) Any refusal or persistent or deliberate neglect by any member of the Industry to file or furnish information required under this Article shall constitute an unfair trade practice and a violation of this Code.

SECTION 5. Each member of the Code shall be entitled to participate in the activities of the Code Authority in connection with the administration of the Code. Any other member of the Industry may become entitled to participate by becoming a member of the Code. Each member of the Code shall bear an equitable share of the cost of maintenance of the Code Authority, either by becoming a member of the Association, or by paying to the Association a sum equal to his reasonable proportionate share of the expenses incurred in the administration of this Code, as determined by the Code Authority, subject to approval of the Administrator. The Association, as a dis-

bursing agency, shall defray the expenses of the administration of this Code incurred by the Code Authority.

ARTICLE III

A. Industrial Relations Policies

SECTION 1. Employes shall have the right to organize and bargain collectively through representatives of their own choosing, and shall be free from the interference, restraint, or coercion of employers of labor, or their agents, in the designation of such representatives or in self-organization or in other concerted activities for the purpose of collective bargaining or other mutual aid or protection.

SECTION 2. No employe and no one seeking employment shall be required as a condition of employment to join any company union or to refrain from joining, organizing, or assisting a labor organization of his own choosing.

SECTION 3. Employers shall comply with the maximum hours of labor, minimum rates of pay, and other conditions of employment approved or prescribed by the President.

SECTION 4. No person under 16 years of age shall be employed in the industry. No person under 18 years of age shall be employed on any manufacturing operations involving mills of any types, strainers, or debeaders.

SECTION 5. Every employer shall make reasonable provision for the safety and health of his employes at the place and during the hours of their employment.

SECTION 6. No employer shall re-classify any employe or the duties of occupations performed or engage in any other subterfuge for the purpose of defeating the purposes or provisions of the Act or of this Code.

SECTION 7. No provision in this Code shall supersede any State or Federal law which imposes more stringent requirements on employers as to age of employes, wages, hours of work, or as to safety, health, sanitary or general working conditions, or insurance or fire protection, than are imposed by this Code.

SECTION 8. Every member of the Industry shall post in conspicuous places in all departments of his establishment or establishments copies of Articles III and IV of this Code.

ARTICLE IV

A. Hours

SECTION 1. Except as herein otherwise provided, no employe shall be permitted to work in excess of 40 hours per week, averaged over each 6 months' period of any calendar year, provided that no such employe shall be permitted to work more than 48 hours in any one week. For all hours worked in excess of 40 hours in any one week, or 8 hours in any one day, overtime shall be paid at the rate of time and 1/3. It is the intent that the hours worked by employes in any one day under this Section shall be consecutive, except that reasonable provision may be made for eating period.

SECTION 2. Maintenance men, engineers, firemen, electricians, shipping crews, watchmen, and elevator operators shall not be permitted to work more than 48 hours in any one week. Provided, however, that this limitation of hours shall not apply in cases of emergency, involving breakdown and dangers to life and property, but in such cases all hours worked in excess of 48 hours in one week, shall be paid at the rate of time and 1/3.

SECTION 3. Except as herein otherwise provided, accounting, clerical, office, service, and sales employes shall not be permitted to work in excess of 40 hours per week averaged over a period of a month, nor more than 48 hours in any one week.

SECTION 4. Employes engaged in a supervisory capacity in factory operations who receive $35.00 per week or less on a salaried basis, shall not be permitted to work in excess of 40 hours per week, averaged over each 6 months' period of any calendar year, provided that no such employe shall be permitted to work more than 48 hours in any one week.

SECTION 5. The maximum hours fixed in Sections 1, 2, 3, and 4 shall not apply to employes in any managerial, executive, supervisory, or technical capacity and to employes on their immediate staffs, provided they regularly receive more than $35.00 per week, nor to any outside salesmen.

SECTION 6. No employer shall knowingly permit any employe to work for any time which, when totaled with that already performed with another employer or employers in this industry, exceeds the maximum permitted herein.

B. Wages

SECTION 1. Except as hereinbelow otherwise provided no employe shall be paid in any pay period less than at the rate of 37½¢ per hour. Apprentices, during an apprenticeship of not more than 60 days, may be paid not less than at the rate of 32½¢ per hour. Such apprentices shall be understood as persons having less than 60 days' previous experience or employment in the Industry and shall not constitute more than 5% of the factory employes in the employ of any member of the Industry. Provided, however, that if any member of the Industry finds such restriction to 5% too stringent such member may appeal to the Administrator who may grant an exception.

SECTION 2. No salaried employes shall be paid less than at the rate of:

$15.00 per week....In cities over 500,000 population or in the immediate trade area of such a city.

$14.50 per week...In cities between 250,000 and 500,000 population or in the immediate trade area of such a city.

$14.00 per week...In cities between 2,500 and under 250,000 population or in the immediate trade area of such a city.

$12.00 per week...In places not covered by the preceding provisions of this Section 2.

(a) Office girls and boys may be paid at a rate of not less than 80% of the above minimum; provided that the total number of such office girls and boys in the employ of any member of the Industry shall not exceed 5% of the total number of employes covered by this Section 2 in the employ of such member. Each member of the Industry, however, may have at least one such employe.

SECTION 3. A person whose earning capacity is limited because of age, physical, or mental handicap may be employed on light work at a wage below the minimum established by this Code if a member of the Industry obtains from the State Authority designated by the United States Department of Labor a certificate authorizing such person's employment at such wages and for such hours as shall be stated in the certificate. Such authority shall be guided by the instructions of the U. S. Department of Labor in issuing certificates to such persons. Each member of the Industry shall file monthly with the Code Authority a list of all such persons employed by him, showing the wages paid to, and the maximum hours of work for such employes.

SECTION 4. Female employes performing substantially the same work as male employes shall receive the same rates of pay as male employes.

SECTION 5. Article IV-B establishes minimum rates of pay which shall apply whether an employe is actually compensated on a time rate, piece work, or other basis.

SECTION 6. Equitable adjustments in all pay schedules of employes above the minimum shall be made within 30 days after the approval of this Code, by any members of the Industry who have not heretofore made such adjustments, and the first monthly reports of wages required to be filed under this Code, shall contain all wage adjustments made since May 1, 1933.

ARTICLE V

A. Complaints and Appeal

SECTION 1. Any interested party shall have the right of complaint to the Code Authority and prompt hearing and decision thereon, under such fair procedure as it shall prescribe, in respect to any rule, regulation, order, or finding made by the Code Authority.

SECTION 2. Any interested party shall have the right of appeal to the Administrator under such procedure as he shall prescribe in respect to any decision, rule, regulation, order, finding, or omission to act by the Code Authority.

ARTICLE VI

A. Costs and Prices

SECTION 1. The Code Authority shall cause to be formulated an accounting system and methods of cost finding and/or estimating capable of use by all members of the Industry. After such system and methods have been formulated and approved by the Administrator, full details concerning them shall be made available to all members. Thereafter all members of the Industry shall determine and/or estimate costs in accordance with the principles of such methods.

SECTION 2. No member of the Industry shall sell or exchange any products of his manufacture at a price lower than his own cost determined in accordance with the above accounting system and methods of cost finding, except as herein provided, or to meet the competition of a lower cost competitor.

(a) Obsolete and discontinued products may be disposed of by any member of the Industry in such manner and on such terms and conditions as said member may desire if said member files with the Code Authority notice of his intention to sell such products together with the terms and conditions of the proposed sale, not less than 2 weeks prior to said sale, and if the Code Authority does not within such 2-week period disapprove such proposed sale.

(b) In the event that the price of crude rubber on the New York market should drop to such a point that members of the Industry become unable to sell reclaimed rubber except at a price below their own individual costs, the Administrator, upon application of the Code Authority with the approval of 75% of the members of the Code, shall temporarily stay the operation of Section 2 of this Article.

SECTION 3. Within 30 days after the approval of this Code, every member of the Industry shall file with the Association

complete schedules of his prices, terms, discounts, and conditions of sale for any products of the Industry. Thereafter, no member of the Industry shall sell any product at prices lower or on terms more favorable than the prices and terms filed as aforesaid, unless he shall first file revised schedules of his prices, terms, discounts, and conditions of sale, which changes shall become effective 10 days after their filing.

(a) The Association shall, promptly after receipt of such revised schedules and terms, notify all members of the Industry affected. Such members may thereupon file with the Association revisions of their schedules and terms which, if filed prior to the date when the revised lists and terms first filed shall go into effect, may become effective on said date.

(b) All schedules filed with the Association shall be open to inspection at all reasonable times by any member of the Industry, or by any customer or prospective customer.[1]

ARTICLE VII

A. Trade Practices

SECTION 1. No member of the Industry shall sell or offer for sale any reclaimed rubber, except under a firm sales contract which shall specify a definite quantity to be delivered over a specified period of time. Nor shall any member guarantee any customer against price declines.

SECTION 2. After 30 days from the date of approval of this Code, no member of the Industry shall sell or ship any products of the Industry on consignment, except under circumstances to be defined by the Code Authority.

SECTION 3. All shipments shall be made f.o.b. member's factory or warehouse. Freight may be allowed to customer's receiving point, but such freight shall not be prepaid.

SECTION 4. The Code Authority shall make studies for the establishment of classifications and adequate descriptions of the products of the Industry in order to minimize any unfair practices which may exist as to the specifications and values offered or sold in the various grades. The Code Authority may appoint a Technical Committee to assist in the formulation of such classifications and descriptions, which shall be submitted to the members of the Code for their approval. After approval by members of the Code and the Code Authority and upon approval by the Administrator, after such notice and hearings as he may deem necessary, such classifications and descriptions shall become the standards for the Industry. Thereafter, no member of the Industry shall sell reclaimed rubber of higher quality than any defined in the established classifications except at a proportionately higher price than his price currently on file for said established classifications and descriptions, which proportionately higher price shall truly reflect the increased cost of such higher quality product.

SECTION 5. No member of the Industry in purchasing any commodity from a customer shall pay a price in excess of the price currently being charged by said customer to purchasers of the same class as that member, to influence the sale of reclaimed rubber.

SECTION 6. No member of the Industry shall use advertising (whether printed, radio, display, or of any other nature) or other representation which is inaccurate in any material particular or which refers inaccurately to competitors or their commodities, prices, values, credit terms, policies, or services. No member shall, in any way, misrepresent any commodity (including its use, trade mark, grade, quality, quantity, origin, size, specifications) or credit terms, values, policies, services, or the nature or form of the business conducted.

SECTION 7. No member of the Industry shall use advertising or selling methods or credit terms with the purpose or effect of deceiving or misleading a customer or prospective customer, in any material particular.

SECTION 8. No member of the Industry shall publish or circulate unjustified or unwarranted threats of legal proceedings which tend to or have the effect of harassing competitors or intimidating their customers.

SECTION 9. No member of the Industry shall secretly offer or make any payment or allowance of a rebate, refund, commission, credit, unearned discount or excess allowance, whether in the form of money or otherwise; nor shall a member secretly offer or extend to any customer any special service or privilege not extended to all such member's customers of the same class.

SECTION 10. No member of the Industry shall give, permit to be given, or directly or indirectly offer to give anything of value for the purpose of influencing or rewarding the action of any employe, agent, or representative of another, in relation to the business of the employer of such employe, or the principal of such agent or the represented party, without the knowledge of such employer, principal or party.

SECTION 11. No member of the Industry shall, directly or indirectly, give or permit to be given, or offer to give, money or anything of value to any customer or prospective customer, or to anyone else, upon the instigation and for the benefit of any customer or prospective customer, to induce such customer or prospective customer to purchase any products of the Industry from such members. The provisions of Sections 10 and 11 of this Article shall not be construed to prohibit free and general distribution of articles commonly used for advertising except so far as such articles are actually used for commercial bribery as hereinabove defined.

SECTION 12. No member of the Industry shall secure confidential information concerning the business of a competitor by a false or misleading statement or representation, by a false impersonation of one in authority, by bribery, or by any other unfair method.

SECTION 13. No member of the Industry shall induce or attempt to induce the breach of an existing contract between a competitor and his customer or source of supply; nor shall any such member interfere with or obstruct the performance of such contractual duties or services.

SECTION 14. No member of the Industry shall brand or mark or pack any commodity in any manner with the purpose or effect of deceiving or misleading purchasers in any material particular with respect to the brand, grade, quality, quantity, origin, size, or specification of such commodity.

SECTION 15. No member of the Industry shall withhold from or insert into any invoice any statement which would make the invoice a false record, wholly or in part, of the transaction to which it refers, or make any arrangement which contemplates payment or settlement contrary to the face of the invoice.

SECTION 16. No member of the Industry shall imitate the trade mark of a competing member.

ARTICLE VIII

A. Monopolies

SECTION 1. No provision of this Code shall be so construed or applied as to permit monopolies or monopolistic practices or to eliminate, oppress, or discriminate against small enterprises.

ARTICLE IX

A. Exports

SECTION 1. The provisions of this Code now or hereafter adopted with regard to prices, discounts, deductions, allowances, extras, commissions, or methods, and/or terms of sale shall not apply to direct export sales, or sale to domestic agents for export only.

ARTICLE X

A. Revisions and Modifications

SECTION 1. This Code and all the provisions thereof are expressly made subject to the right of the President, in accordance with the provisions of Subsection (b) of Section 10 of the Act, from time to time to cancel or modify any order, approval, license, rule, or regulation issued under said Act and specifically, but without limitation, to the right of the President to cancel or modify his approval of this Code or any conditions imposed by him upon his approval thereof, as changes in circumstances or experience may indicate.

SECTION 2. Such of the provisions of this Code as are not required by the Act to be included herein may, with the approval of the President or Administrator, be modified or eliminated as changed circumstances or experiences may indicate. It is intended that additions to this Code applicable to all members of the Industry may be submitted to the Administrator for approval, as provided in Article XI of the Code.

SECTION 3. If any member of the Industry is likewise engaged in part in any other industry or trade, this Code shall apply only to such of the activities of said member as are comprehended in the Reclaimed Rubber Manufacturing Industry.

ARTICLE XI

A. Additions, Alterations, and Amendments

SECTION 1. The Code Authority, with the approval of the majority of the members of the Code in number and in volume of sales (excluding any sales made to any subsidiary or affiliated companies) may recommend to the Administrator any addition, alteration, or modification of this Code. Upon approval by the Administrator, after such notice and hearing as he may prescribe, the same shall be binding as a part of this Code.

ARTICLE XII

A. Effective Date and Termination

SECTION 1. This Code shall become effective on the second Monday[2] after it shall have been approved by the President of the United States. It shall continue in effect until June 16, 1935, or until such time prior thereto when the President shall by proclamation or the Congress shall by joint resolution declare the emergency recognized by Section 1 of the Act has ended.

[1] See paragraph 2 of order approving this Code.

[2] President F. D. Roosevelt approved this Code on April 2, 1934. It went into effect April 16, 1934.

EDITORIALS

De Krafft's Restriction Plan

AN ALTERNATIVE proposal to the plan of restriction now being considered by the British and Dutch rubber committees has been drawn up by William de Krafft, chairman of the United States Rubber Co.'s finance committee.

This plan, according to *The Wall Street Journal*, would permit plantations to produce 100% of their standard production, but not more than their production in 1933. Of this production 20% would be sold to the International Control Committee at 2½ pence gold. The committee would be financed by banking credits up to £5,000,000 sterling. This rubber would be warehoused at Singapore, London, and New York. At any time that the market price of rubber exceeded 4 pence gold, the committee would sell from its holdings in order to restore the price equilibrium.

If the rubber purchased by the committee during the first year of restriction were resold during that year, the same plan would be followed during the second year. If any part of the rubber purchased remained on the committee's hands at the end of any year, then production in the next year would be limited sufficiently to balance the demand. If demand exceeded the inventory, then additional production would be released.

The plan of restriction proposed by the Dutch committee and now being considered by the British committee contemplated a standard annual production of 1,000,000 tons. Of this the Dutch committee has found no means of restricting the estimated 150,000 tons produced by Dutch East Indian natives and has suggested instead a tax of 4% in kind. The controllable production of 850,000 tons would be restricted by 35%, allowing 552,500 tons to be produced or a total production of 702,500 tons during the first year of restriction.

Mr. de Krafft contends that when the market price of rubber reaches 15¢ a pound, rubber manufacturers in the United States are compelled for competitive reasons to reduce costs by including reclaim rubber in their products when reclaim sells at a lower market price. Capacity for reclaim rubber production in this country was expanded during the period of the Stevenson Act restriction to 307,000 tons annually, although only 77,000 tons were consumed in 1932 due to the low price of rubber in that year. He estimates that within 6 months after rubber prices reach 15¢ a pound the replacement of crude rubber by reclaim and synthetic products might be at the rate of 450,000 tons annually, or 50% of estimated plantation production of rubber in 1934.

Goodrich Pension Plan

A RETIREMENT pension plan for all employes of The B. F. Goodrich Co. and subsidiaries in the United States and Canada was announced last month by J. D. Tew, president. This plan assures income to men and women on retirement, and it is estimated will result in the accumulation of $1,500,000 for company employes annually.

The pension program is a direct result of a desire on the part of the representatives of the Cooperative Plan of Representation, the employes generally, and the company itself to establish a permanent means of guaranteeing incomes for employes during old age.

The amount of the pension will depend on the length of the employe's membership in the plan and is based on average weekly earnings. Employes who participate will make small weekly payments and the Goodrich company will make the necessary additional contributions.

If an employe who joins the Cooperative Retirement Plan dies or leaves the service of the company before retirement, his contributions are returned in full with 3½% interest compounded annually, or the amount is paid the beneficiary in the event of the employe's death.

In announcing the Goodrich plan President Tew said: "Since 1915 this company and some of its affiliated companies have carried group insurance providing benefits for beneficiaries of employes in the case of death, and in 1926 sickness and accident benefits were also made available. During this period more than $3,000,000 has been paid to employes and their beneficiaries. Under this pension plan the employe may now look forward to retiring" with an assured income.

Retirement under the Goodrich plan will generally come at age 65 for men and 60 for women, and the pensions will begin on the first of every month and continue monthly thereafter as long as the employe lives.

Opposition to Wagner Bill

THE Wagner Bill is meeting strong opposition from industrialists who claim that small rubber businesses can not be handled in the same manner and subjected to the same treatment as those engaged in mass production of rubber goods. A few reasons for the above statement are: small manufacturers are unable to meet the necessary heavy overhead; in a small community the company affairs are public property; in small plants it would be impossible to American Federationize labor, thereby creating a monopoly without compensating responsibilities.

What the Rubber Chemists Are Doing

Hydrogenated Stearic Acid

Donald F. Cranor[1]

THE first fatty acid of special rubber grade produced by hydrogenation of selected fish oil was Stearex Flake introduced about 3 years ago. Although the flake form proved quite acceptable, flaking was subject to considerable variation. In this process the fully saponified material is run on to chilled rolls and mechanically scraped off. By such a method it is impossible to maintain a high degree of uniformity as regards the size of individual flakes; therefore a new process has been devised, resulting in Stearex Beads, a form better adapted for ease of compounding.

Adaptation of the spray process applied while the fatty acid is in molten state makes possible fine comminution and more uniform particle size. Beads thus produced are more easily handled in the compound room of the rubber factory. Fatty acid in this form, being smaller in size than the average flake, is more rapidly absorbed by rubber either on mill rolls or in an internal mixer.

Fatty acids produced by hydrogenation are definitely established as superior products. The more fully saturated product made available by this fundamental process of chemical industry is more uniform and therefore reliable in activating effect. Being more soluble in rubber, there is less bloom tendency, and the lower oleic acid content favors better aging properties. These well-established facts are quite readily explained by the essential differences in composition of single pressed stearic acid and hydrogenated stearic acid. A brief description of the raw materials from the chemical point of view, together with an outline of the methods of manufacture, should serve clearly to demonstrate the advantages of the newer form.

The raw material used for the manufacture of stearic acid of animal origin is tallow. Hilditch[2] states the composition of beef tallow as follows:

ANALYSIS OF BEEF TALLOW

	North American %	South American %
Unsaturated Glycerides		
Oleic (C_{18})	48.3	47.5
Linoleic (C_{18})	2.7	5.0
Saturated Glycerides		
Myristic (C_{14})	2.0	2.5
Palmitic (C_{16})	32.5	25.0
Stearic (C_{18})	14.5	20.0
	100.0	100.0

The processes by which single pressed acid is produced from beef tallow include saponification followed by cold and hot pressing which mechanically removes the major portion of the unsaturated oleic and linoleic acid. The iodine value of the product averages about 12% even for superior grades. Thus in the composition of the typical single pressed stearic acid of commerce there is a considerable portion of unsaturated acid, and also palmitic acid is a most important component.

On the other hand the hydrogenation process as applied to selected fish oil reduces the unsaturated content to a minimum, and in the final product saturated fatty acids falling in the range C_{18} to C_{22} carbon atoms make up the major proportion with stearic acid predominating. The following analysis of menhaden fish oil indicates the approximate composition of the product which results from hydrogenation and saponification of oil of this type.

ANALYSIS OF MENHADEN OIL

	%
Unsaturated Acid Glycerides	
C_{16} Unsaturate	15.5
C_{18} Unsaturate	29.6
C_{20} Unsaturate	19.0
C_{22} Unsaturate	11.7
Saturated Acid Glycerides	
Myristic (C_{14})	5.9
Palmitic (C_{16})	16.3
Stearic (C_{18})	0.6
	98.6

Thus the product resulting from hydrogenation is one in which chemically formed stearic acid predominates to an even greater extent than in the so-called stearic acids of animal origin, and, further, the fatty acids other than stearic are saturated materials of higher rather than lower number of carbon atoms. It is the higher average molecular weight of this type of product which accounts for the lower free fatty acid, acid number, and saponification number, when, as is the practice of the rubber chemist, these values are calculated on the molecular weight of stearic acid. Moreover there is practically no unsaponifiable matter to account for these lower values since hydrogenated products are just as free from such impurity as the pressed animal product. The entire explanation lies in the fact that the saturated acids present contain a higher number of carbon atoms.

In compounding practice a hydrogenated acid and a product of animal origin are considered interchangeable pound for pound. From the point of view of chemical activation this is sound practice. However aging results and theoretical considerations based on a difference in chemical composition to say nothing of the greater reliance which can be placed in a product produced by a method amenable to close chemical control point to definite advantages in the hydrogenated product. The added advantages of easier handling, and more rapid assimilation in mixing cause Stearex Beads to stand out as the logical standard of the present day.

[1] Binney & Smith Co., 41 E. 42nd St., New York, N. Y.

[2] "The Industrial Chemistry of Fats and Waxes," T. P. Hilditch, 1927.

Catalpo

CATALPO overcomes flat spots in curing certain types of insulated wire, such as 20% and 30% code wire, by displacing some of the whiting with Catalpo as in the following mixings.

20% CODE STOCK

22-0	Smoked sheet
20-0	Mineral rubber
0-4	Age-Rite
2-0	Zinc oxide
20-0	Catalpo
0-8	Litharge
35-0	Whiting
0-9	Sulphur
0-3	Captax

30% CODE STOCK

32-0	Smoked sheet
10-0	Zinc oxide
29-2	Catalpo
25-0	Whiting
1-8	Paraffin
0-10	Stearic acid
0-9	Age-Rite
0-3	Captax
1-0	Sulphur

Warm 20 minutes at 5 pounds' steam. Hold 35 to 45 minutes at 30 pounds and blow off 15 minutes.

Rubber Lacquers

Clear lacquers have been developed suitable for use on flexible rubber and latex products designed for application before or after cure. Colored lacquers are also available for leatherette and molded goods.

A. C. S. Rubber Division Meetings

Chicago Group

THE spring meeting of the Chicago Group, Rubber Division, A. C. S., held in the Hotel Sherman, Chicago, Ill., April 13, was attended by 92 members and their guests. The latter included a number of rubber trade representatives from Indiana, Michigan, Wisconsin, and Ohio. After dinner in the College Inn and an excellent floor entertainment, the company adjourned to the Crystal Room of the hotel and listened to a paper on "The Measurement of Quality in Rubber Compounds by Physical Tests" by Arthur W. Carpenter, manager of the testing laboratories of the B. F. Goodrich Co., Akron, O. This paper, illustrated by lantern slides, presented data of much interest to the audience.

A second feature on the program was the exhibition of films entitled "Africa in the Raw" by the noted African hunter, J. C. Nichols, who secured the subjects first hand on a recent trip to the African big game country.

Akron Group

A DINNER-MEETING of the Akron Group, Rubber Division, A. C. S., was held April 30 at the Akron City Club. The speaker of the evening was Webster N. Jones, Director of Engineering at the Carnegie Institute, Pittsburgh, Pa., who was formerly general superintendent of the processing division of the Goodrich company in Akron. His remarks on "Recent Trends in Engineering Education" proved of great interest to his hearers.

At the same meeting a new vice chairman was elected to take the place of C. A. Carlton who, under the rules, automatically succeeds Harry A. Bourne as chairman of the Akron Group for the coming year. Also chosen was a secretary-treasurer.

New York Group

THE next meeting of the New York Group, Rubber Division, A. C. S., will be on the evening of May 18 at the clubrooms of the Building Trades Employers Association, 2 Park Ave., New York, N. Y.

There will be 3 interesting papers: "Estate and Native Rubber Contrasted," by Dr. H. N. Whitford, manager of the Rubber Manufacturers Association, Inc.'s, crude rubber department and a recognized authority on rubber planting; Earl A. Hawkins, of the General Electric Laboratories, Schenectady, N. Y., will speak on research work in GE laboratories; and S. W. Nourse will talk on the preparation of lantern slides.

At this meeting details of an outing to be held June 30, at Semlers Midland Park, Grant City, Staten Island, will be submitted to the group for approval. The attractions planned are a shore dinner, golf, a baseball game between "pedlers" and chemists, swimming, running and novelty races, and other games. Worthwhile prizes will be awarded to the winners.

Boston Group

AN INTERESTING program is in preparation for the next meeting of the Boston Group, Rubber Division, A. C. S., which is tentatively set for May 26, 1934. The intention is to have several short papers on the application of latex to the manufacture of various industrial products. This meeting will be held at one of the country clubs near Boston, where golf and other recreations may be enjoyed during the afternoon.

Retarder W

RETARDER W is a preventive of scorching developed especially for use with Acrin accelerator. When processing conditions are unfavorable and a very safe handling stock is required, it is recommended to use half as much Retarder W as Acrin. If cooling conditions, etc., are good, the amount of Retarder W may be reduced to ¼ of the Acrin or the latter may be used alone. Retarder W should not be used in a stock intended to set up quickly. It enables the compounder to produce stocks having any desired rate of set-up. It affects only the early stages of the cure while the stock is warming up and does not retard cure at temperatures above 250° F. In fact it has a slight activating effect at 290° F. and above.

Low-Temperature Curing Cement

	A	B
Rubber	100	100
XX zinc oxide	10	10
ZBX (zinc butyl xanthate)	6	..
DBA (di benzyl amine)	..	4
Sulphur	..	6
	116	120

In these mixings zinc oxide is essential, but may be varied. Also, colors and standard compounding ingredients may be used as desired. The ratio of ZBX, DBA, and sulphur to the rubber in the above is correct.

The 4 pounds of DBA may be replaced by 6 pounds of aniline if a reduction in cost is important. Aniline, however, is very volatile, and some danger exists of the fumes entering the ZBX cement and causing it to semi-cure. There is also the well-known toxic property of aniline to be considered. DBA is a very stable and comparatively non-volatile, non-toxic amine especially made for this work and well adapted to the job.

ZBX should be kept in a cool place. It is relatively unstable and will decompose easily at summer heat and above. Under proper storage conditions it is stable for a period of 3 to 6 months.

Separate cements A and B are stable for a comparatively long period of time. Blended cement should be used the day it is blended.

The mixings A and B are made up as 2 separate cements, preferably with benzol as solvent. Naphtha of the proper volatility may be used. It is preferable to use 2 cement churns; but, if only one is used, it must be thoroughly cleaned after mixing the one in order not to contaminate the other. The cements may be stored in separate containers in the tube splicing room. The cement operators draw about equal amounts of each cement into their hand pails, stir well, and use. Tubes spliced with this cement will cure in 1 to 2 hours in a warm room at 175° F. Steam cured splices have been made in 3 minutes at 25 pounds' steam.

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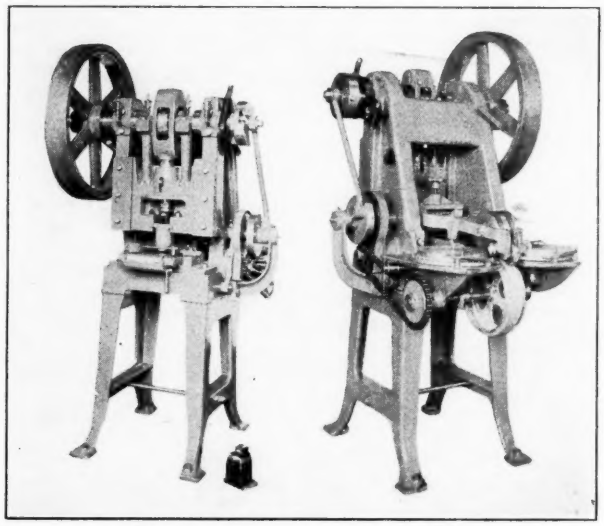
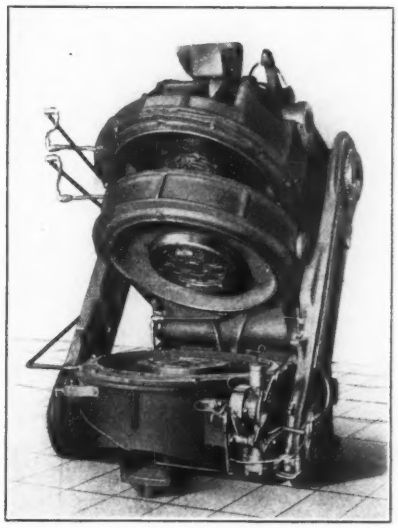
New Machines and Appliances



Front Back

Coulter Volumetric Heel Cutter



Macbeth Twin Press

Volumetric Heel Cutter

THE latest model of heel cutting press, here illustrated, was originally introduced in 1922. Since then it has been improved from time to time as experience in its use has dictated. The press is the usual crank type with 2-inch spoke and additional cam in center of the crank to operate the volumetric presser, which reduces the warm strip stock to a predetermined thickness for cutting by the die. The cut stock proceeds through the machine to the stripper mechanism, which draws the scrap away from the heel blanks, permitting them to drop into the cooling solution and directing the scrap back to the warming mill for reuse.

The press operates from 100 to 200 strokes per minute, depending on the size of the heel. The volumetric principle yields a blank of controlled volume with mold overflow not exceeding 2% and a variation not over ½-gram in weight. No calendering is required. Some users report an output of 120,000 heels per day from one machine. It is well designed for this work and strongly built to stand severe and continuous service. It is 75 inches high and occupies a floor space 42 by 47 inches. The Automatic Machine Co., Bridgeport, Conn.

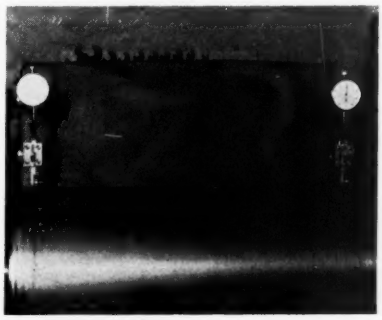
Steel Steam Platens

THE practice of using heavy cast iron as platens for vulcanizing presses is being superseded by the modern steel plate, which is thinner, truer, and more uniformly heated than the cast-iron type. The bored steel plates are so carefully made on especially designed precision tools that they meet all requirements for strength, accuracy, and uniform distribution of heat. They may be had of virtually any dimensions up to 50 inches wide by 25 feet or more in length. R. D. Wood & Co., 400 Chestnut St., Philadelphia, Pa.

Twin Tire Press

INDIVIDUAL tire vulcanizers have long been available, but their economic advantages are not sufficient to warrant their purchase for displacement of existing autoclave plants. The twin press here pictured possesses all the salient features desired by the tire manufacturer, such as product improvement, reduction in molding defects, reduction in labor costs, overhead charges, hydraulic and steam power costs, and capital expenditure.

The illustration represents the press open for insertion of a tire in the lower cavity by placing it on the bottom bead ring. A pull on the lower handle of the valve lowers the middle leaf of the press; then the second tire is adjusted on the bead ring, and the press closed by pulling on the upper handle of the valve. When closed, the curing bags are both automatically connected to the supply line. No holding down bolts are required as the press is supported on 3 points well spaced apart. There is no difficulty in converting existing autoclave molds for use in this twin press. Colin Macbeth, 67 Norwich Union Chambers, Birmingham 3, Eng.



Wolf Calender Control and Gage

Roll-Setting Device

THE device illustrated is designed as a controlling and measuring apparatus for setting calender and spreader rolls. The equipment consists of 2 meters or gages and accessories mounted both sides of the roll. It not only enables the operator to adjust the roll spacing very accurately, but also makes it possible to control continuously the thickness of material being run. The spacing of the roll is indicated on the gage at each side of the roll, which permits of uniform adjustment of both ends of the roll.

The advantages to be derived from this apparatus are listed thus: exact control of working time and output; great exactness of measurement; no more adjustments by feeling; check measurements not required; and reduced wear and tear of the machine. Otto Wolf, Mackensenstrasse 2, Eilenburg b. Leipzig, Germany.

Moisture Testing Instrument

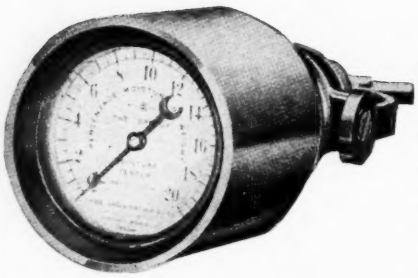
A HANDY device for quickly making tests of moisture in powdered materials such as oxides, abrasives, powdered fuel, etc., is that represented in the illustration. The outfit comprises a sensitive scale for weighing the material to be tested, a bomb, and a package of reagent assembled in a portable case. The principle of the tester is that the reagent used in conjunction with the sample to be tested reacts with the moisture in the sample and forms a gas. The pressure of this gas is translated into per cent moisture by the gage at the base of the bomb.

The gages available read from 0 to 5%, 0 to 10%, 0 to 20%, 2½ to 10%, 5 to 20%, and 12½ to 50%. In choosing the type of gage most suitable for one's needs the moisture content of the materials most frequently tested should be considered.

In using the instrument for testing granular materials the sample is placed in the cap and the reagent in the body of the bomb; while for fluffy material such as rayon or wool reversal of these placements is recommended. The bomb is held in horizontal position while being closed so that reagent and sample do not come into contact and generate gas before the bomb is tightly closed. The time of shaking should not be over 5 seconds, and the bomb should be held in horizontal position until the indicator on the gage reaches its final position. The Alpha-Lux Co., Inc., 192 Front St., New York, N. Y.

Homogenizer

A REQUISITE condition for success in latex dipped goods is a well homogenized composition. A device such as that pictured, known as a 2-stage homogenizer, is used in the compounding of latex with emulsions of paraffin or of asphalt. The machine is designed for the production of emulsions or colloidal dispersions and is a most efficient machine for such work. The capacity is practically constant,



Speedy Moisture Tester

regardless of pressure employed; whereas on other types of machines the capacity varies directly with the fineness of the product being emulsified. The power required is very much less, and the results are found to be much superior.

The illustration shows the homogenizer with covers removed, exposing the whole mechanism. The driving sprocket (lower center) is keyed to the gear-motor shaft and transmits power from the gear-motor direct to the camshaft by a roller chain.

The oil pump and drive are shown in the lower left corner of the cut. The pump delivers oil to the 2 main bearings from which it is forced through a drilled camshaft direct to the cams. Oil is supplied to the pan on top of the crosshead guide from which it flows over the crossheads. The hole through the frame (top right) removes the cooling water supplied to the plungers. The port below the chain case provides part of the cooling air for the motor.

The method of operation of this machine is very simple. It is in reality a high-pressure pump. Where possible, it is advisable to feed the product to it by gravity although a small suction head will not seriously interfere. The product is drawn into the suction head and discharged through the 2 homogenizing valves arranged in series and so to the discharge outlet. Manton-Gaulin Mfg. Co., Inc., St. Johnsburg, Vt.

Planigressive Speed Reducer

THE multi-speed reducer pictured is designed to give a variation in speed and also a reduction of speed at the same time. It makes possible the use of high constant speed motors instead of the costly multi-speed type. It also gives the exact speed required, which is practically impossible with multi-speed motors. No expensive or special electrical control is necessary.

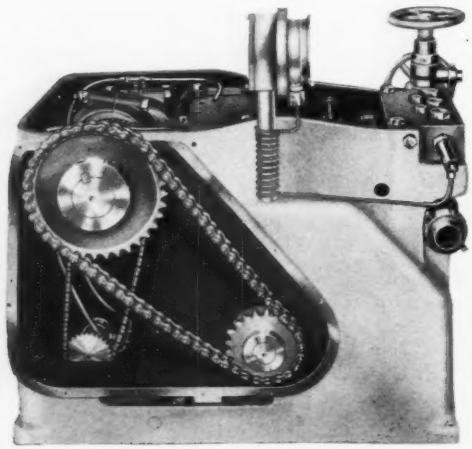
The reduction in speed is obtained through planetary gears. Composition gears are used to insure quiet operation. All that is necessary to change speed is to shift the lever to the speed required, which action brings the particular reduction into use. The change in speed can be made while the reducer is running with or without load or with the reducer stopped. The reducer can be run in either direction without making a change or adjustment.

There is no load on any of the other gears outside the set required to obtain the necessary reduction. The balance of the gears is carried along idle. This construction prevents excessive wear on the parts not needed to obtain the required reduction.

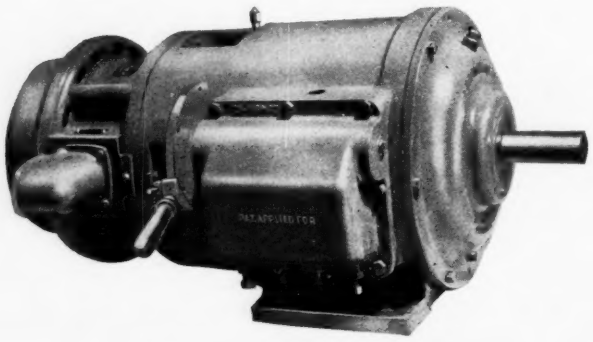
Lubrication is provided by carrying a supply of oil at the proper level in the base. The gears in the lower position run through oil and carry it to all parts that require lubrication. Davis & Thompson Co., 6619 W. Mitchell St., Milwaukee, Wis.

Densimeter

THE densimeter is a scientific instrument for laboratory and general shop use for reliably measuring the relative hardness of rubber stocks. It determines the density of rubber in accordance with a standard scale. Through the base of the instrument a rounded steel point protrudes. This point is pressed against the rubber to be tested until the base of the instrument bears on the rubber surface. At this point the degree of hardness is read on the dial. This reading multiplied by 2 gives the plasticity as shown by this well-known plastometer. Stowe-Woodward, Inc., Newton Upper Falls, Mass.



Manton-Gaulin Homogenizer



Davis & Thompson Speed Reducer

New Goods and Specialties

M. S. A. Safety Shoe

Protective Footwear

SERIOUS foot injuries have often been averted because the worker was wearing safety shoes at the time of the mishap. For full protection of employes' feet such footwear as is made by the Mine Safety Appliances Co., Pittsburgh, Pa., is suggested. These shoes, all of which have the distinctive built-in safety toe construction of either steel or reenforced composition that resists impacts, are available in 6 styles to meet various requirements.

Style No. 1 has the composition safety toe, Goodyear welt sewed construction, Gro-cord sole and heel, all-leather counter, nickeled hooks and eyelets, black leather upper, tan and white double and triple stitching, and tan top binding. Style 3 is the same except that it features a steel safety toe.

Style No. 2 also has the composition safety toe; while Style 4 has the steel one. Their differences from 1 and 3 are their double oak tanned leather sole and rubber heel, their anchored steel shaft, their black-finish hooks and eyelets, their double and triple stitching in black, and their black top binding.

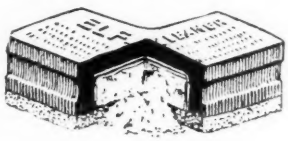
The outstanding feature of Style 5 is the brass nails to eliminate the hazard of sparking, for securing the leather heel and reenforcing the leather sole. Otherwise the construction of the shoe follows that of Style 4.

Style No. 6A is made with steel safety toe, nailed construction, composition rubber sole and heel, all-leather counter, nickeled finish hooks and eyelets, black leather upper, and double and triple stitching, reenforced with rivets.

Sponge Rubber Cleaner

RUBBER is utilized in many ways to make the housewife's task easier. One of the more recent such products is the Elf cleaner. Fashioned of sponge rubber, in its center it holds a generous portion of white cleansing powder that seeps through the rubber pores when moistened.

When the Elf is used the very first time, it should be thoroughly wet. The rubber sponge is grasped in both hands, twisted hard, and completely submerged in water. While there, the cleaner is released, allowing the water to be absorbed. The sponge is kneaded until its contents are thoroughly wet; for the powder must be turned to paste. Then the surplus water is shaken off, and the Elf is ready for use. When it becomes dry and the paste comes out slowly, the cleaner is slightly moistened by dipping one end in water. It should be just wet enough to leave a thin white film of cleaning material on the surface to which it is applied. This film, while wet, is wiped, until dry, over the surface to be cleaned with a clean dry cloth. When soiled, Elf is held slantingly under running water and



Elf Cleaner

rubbed slightly. The dirt should just roll off. If the orchid part becomes sticky, it is washed with laundry soap.

This cleaner is recommended for cleaning and polishing glass, white paint, porcelain, nickel, enamel, tile, brass, linoleum, and plated ware. It will be found very handy in garage, bathroom, kitchen, and around the house generally. But it should not be used on greasy pots and pans as grease decomposes rubber. The Expello Corp., Dover, N. H.

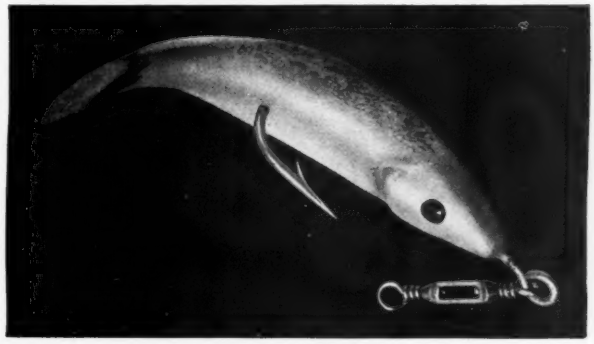
The Vanishing Odor

RUBBER, all agree, is a most useful product; but its odor—ah, that's another story. Current reports state that more and more is this smell acting as a sales deterrent. Thus one of the largest rubber manufacturers submitted a special rubberized carpeting to an automobile maker for use particularly in closed cars. This carpeting was rejected because of the rubber odor. A rubber steering wheel met the same fate.

How to overcome such a difficulty? By the use of deodorants, of course. We find one carpeting manufacturer now adding a minute quantity of deodorant to the preservatives in his sizing, thus eliminating the rancid odor occasioned by the starch turning sour. Another manufacturer, of rubber-backed domestic oriental rugs, saw his sales increase when the rubber odor was removed. Dress shields, too, a favorite of fastidious women, are enhanced by deodorizing. In passing, though, a warning should be given against making goods definitely perfumed.

Latex Fishing Lure

A TOUGH, flexible rubber minnow is the latest in fish bait. "Minnie the Swimmer," as it is called, made of a latex body molded on the shank of a hook of fine quality, is said to present a lifelike figure and appearance and a live swimming action when in use, owing to its specially curved shape. The rubber body is mechanically anchored to the shank so that it will not pull off in service. "Minnie's" finish is silvery with dark stippling on her back. She comes in 3 sizes for all game fish: bass, pike, and Big Min. The first weighs ¼-ounce and is approximately 2¾ inches long; while the second weighs ½-ounce and is approximately 3½ inches long. Big Min, weighing 1½ ounces and measuring about 5 inches, is made on size 10/0 hook and is claimed suitable for the largest fish caught on a line. Druley's Research Products, 713 Seventh Ave. S.E., Minneapolis, Minn.



"Minnie the Swimmer"

Rubber Industry in America

OHIO

The Worthington Ball Co., Elyria, according to Vice President J. C. Brydon is manufacturing the Walter Hagen golf ball for 1934. This ball has pure honey placed in the shell of the center through an exclusive process of The L. A. Young Co., Detroit, Mich., distributer of Walter Hagen products. Mr. Brydon also states that most of the 75¢ retail golf balls for 1934 have a tough thin cover. The core is wound a little larger at a higher tension, giving the ball more click and distance. As every golfer does not want a ball with a tough thin cover, for it is by no means a durable ball, most manufacturers this year are making a tough heavy-cover ball, which, though not having so high a tension as the thin-cover model, is very serviceable for the average player.

Anchor Rubber Products, Inc., formerly at 8830 St. Clair Ave., Cleveland, recently completed equipping its new plant at 3170 W. 33rd St. to manufacture soft rubber molded automotive, household, and mechanical merchandise. The new plant went into operation the week of April 23. Prior to that time the firm had been a sales organization, taking the output of another rubber factory. Anchor, however, built a sales organization from coast to coast, which necessitated producing its own goods. The company has enough orders on hand to keep the plant operating for some time. Anchor executives include Ben Kravitz, president; Oscar Kravitz, secretary-treasurer; and H. A. Maguire, sales manager.

Goodyear Tire & Rubber Co., Akron, at the recent annual stockholders' meeting named 2 new directors: Paul E. H. Leroy, vice president and treasurer; and Newton D. Baker, former secretary of war. Mr. Baker was also appointed to the executive and finance committee. Serving with him are President Paul W. Litchfield, Vice President C. Slusser, E. B. Greene, and Grayson Murphy. Directors reelected all company officers. Last month Goodyear was host to more than 70 of its representatives at Des Moines, Iowa, those present including personnel from the Des Moines, Omaha, Neb., Minneapolis, Minn., and Fargo, N. D., branches. L. J. Holroyd, manager of the Des Moines branch, acted as host. Among Akron officials attending were R. S. Wilson, vice president and general sales manager; A. Jae Sears, division manager of advertising; and Harry E. Blythe, assistant to the president.

Goodyear-Sears-Roebuck

After a 2-week recess, during which attorneys for the Federal Trade Commission studied evidence relating to the Goodyear-Sears-Roebuck tire contract, hearings were resumed April 9 in Washington, D. C. From here the hearings were moved to New York, N. Y., April 16, and after several sessions the case was transferred to Akron, O., to be completed May 1.

Strikes Increasing

The rubber industry has been characterized in the past by the almost complete absence of strikes. But times have changed, and a clean record broken. Last month 500 employes of the American Hard Rubber Co., Akron, O., walked out, demanding higher wages and union recognition. The strike at the Barr Rubber Products Co., Sandusky, does not concern wages, but union recognition. One hundred and seventy-five employes of the Akron Standard Mold Co., Akron, O., have struck for higher wages. Strike disorders are reported at the plant of the Aetna Rubber Co., Ashtabula, O.

Firestone Tire & Rubber Co., Akron, recently was visited by John L. Cohill, vice president and general manager of the Firestone Tire & Rubber Co. of Argentina, who reported greatly improved business conditions there. Another visitor was Robert Bult, managing director of Firestone Import, A. G., Firestone distributer for Switzerland, who was accompanied by Mrs. Bult and G. R. Vlober, Firestone European district manager.

Dayton Rubber Mfg. Co., Dayton, is erecting a new 2-story warehouse, the second new unit within a year, to furnish 12,000 square feet of floor space and to cost about $15,000.

A Century of Progress for 1934, Chicago, Ill., will open May 26 instead of the original date, June 1.

Druley's Research Products, 713 Seventh Ave. S.E., Minneapolis, Minn., was established February 1, 1933, to design and develop new products, mostly with rubber latex. To date the firm has offered 3 new articles: a latex fishing lure; sponge rubber arch supports; and a sponge rubber collar used in dentistry. The concern also handles custom design and research. L. Lisle Druley, head of the firm, is a chemist who matriculated at Macalester College, St. Paul, Minn.

NEW JERSEY

Rubber manufacturers throughout New Jersey, elated over present business conditions, believe the coming summer will find plants running fairly well. The threatened strike of automobile workers had the rubber manufacturers worried for a time. With that matter settled and the code adjusting itself, producers look for no further trouble. The demand for mechanical goods increased last month.

New Jersey tire dealers have asked Herry L. Tepper, acting chief of the State Recovery Administration, for a State code. Judge James E. Erwin, representing more than 200 dealers, said that the majority of them would be forced into bankruptcy unless granted relief. They would have to raise prices. There are 6,100 members of the trade with 15,000 employes. Tire dealers recently complained to Governor Moore that manufacturers were forcing ruinous price cutting upon them.

Acme Rubber Mfg. Co., Trenton, reports business as being much better than at this time last year.

The Thermoid Co., Trenton, announces normal business in all departments. The Woven Steel Hose & Rubber Co., owned by Thermoid, also is busy.

Mercer Rubber Co., Hamilton Square, is optimistic over the future, with conditions good at present.

Essex Rubber Co., Trenton, has been well occupied in all departments since the beginning of the year, and officials say orders for the summer are very satisfactory.

The Pocono Co., Trenton, reports that business continues fair. We deeply regret the error in last month's issue which stated that Holland B. Slusser was vice president and treasurer of the Hamilton Rubber Mfg. Co., Trenton. Mr. Slusser holds those positions with The Pocono Co. Henry N. Young is vice president of the Hamilton firm, and General Manager A. Boyd Cornell is its treasurer.

Thiokol Corp., Yardville, has signed exclusive license contracts with leading electric wire and cable manufacturers in Europe, as follow: British Insulation Cables, Ltd., Prescot, England; Felten & Guilleaume Carlswerk, Cologne, Germany; Forges & Ateliers de Constructions Electriques, Jeumont (Nord) France; Societa Italiana Pirelli, Milan, Italy; and Commercial Pirelli S. A., Barcelona, Spain. It has been established that Thiokol is proof against ozone and, therefore, practically proof against corona.

(*Continued on page* 74)

EASTERN AND SOUTHERN

Technical Sales Consultant

With the opening of a pigment department in its New York, N. Y., office Herron & Meyer, Inc., 82 Beaver St., through President John W. Herron announced that Harley A. Flint, who covered part of New England for the company for the past 2 years, had been transferred to the New York office to act as technical sales consultant for the company's business in the East.

Mr. Flint was born in Middleton, Mass., August 14, 1884. He attended Malden, Mass., High School and Harvard University, which conferred upon him the following degrees: A.B. in 1906; A.M., 1907; and Ph.D., 1909.

He then joined the Mallinckrodt Chemical Works, St. Louis, Mo., as research chemist. But in 1911 he left to accept a similar position at the smokeless powder plant of E. I. du Pont de Nemours & Co. at Parlin, N. J. Five years later he was sent to the Fairfield, Conn., factory where he was initiated into the rubber industry. At the time of his resignation in 1922 he was plant superintendent. Until 1929 Mr. Flint served as technical sales representative in the New York office of the Philadelphia Rubber Works Co. Then the Pequanoc Rubber Co., Butler, N. J., signed him as a technical sales consultant. In the latter part of 1931, however, he went to Herron & Meyer, Inc., crude rubber dealer also engaged in marketing Gastex and Palmer carbon blacks and Crown Brand clay.

Mr. Flint belongs to the American Chemical Society and the Masons.

H. Hentz & Co., Cotton Exchange Bldg., Hanover Square, New York, N. Y., has opened a branch at 730 Fifth Ave., New York, under the management of Burnett W. Straus. Telephone: CIrcle 7-3370.

E. I. du Pont de Nemours & Co., Inc., Rubber Chemicals Division, Wilmington, Del., has appointed V. A. Cosler technical consultant on the application of DuPrene to mechanical goods and consultant on rubber problems to the various du Pont industries.

Vulcanized Rubber Co., Morrisville, Pa., pleased with present conditions, reported production remains fair in all its hard rubber departments.

Pennsylvania Rubber Co. of America, Inc., Jeannette, Pa., on March 28 held its thirty-fifth annual meeting at which the board of directors and all officers were reelected. President W. O. Rutherford sees the future outlook materially brighter. He also stated that the company very shortly will announce a new line of tires which will supplement regular activities and add considerably to the company's volume. Pennsylvania Rubber is in a good financial position and is working at a high rate of production.

H. A. Flint

The American Cyanamid & Chemical Corp., with main offices at 30 Rockefeller Plaza, New York, N. Y., has announced the opening of a division to import and deal in crude rubber. The corporation is already in close contact with the rubber consuming industry inasmuch as it is a large factor in the sale of sulphur, accelerators, pigments, heavy chemicals, and other compounding ingredients. The crude rubber division will be under the direction of Bancroft W. Henderson, who has had a very broad experience in crude rubber, beginning his rubber career as early as 1907. Mr. Henderson has an extensive acquaintance in the rubber manufacturing industry, both in this country and abroad; he has made several extensive trips to the Far East, visiting the countries of production, returning from his last trip in the Fall of 1933.

Bancroft W. Henderson

The Toy Fair

The annual American Toy Fair, under the auspices of the Toy Manufacturers of the U. S. A., Inc., was held April 9 to 28 at the Hotel McAlpin and the Fifth Ave. Bldg., 200 Fifth Ave., both in New York, N. Y. Many interesting exhibits featured playthings wholly or partly of rubber. Among these were:

Admiar Rubber Co. and the Ideal Novelty & Toy Co., both of 273 Van Sinderen Ave., Brooklyn, N. Y., with M. Michtom in attendance, showed all-rubber dolls and dolls with rubber limbs.

Bambino Products Corp., 105 S. Jefferson St., Chicago, Ill., displayed its baseball games. W. W. Wyant was in charge.

The Barr Rubber Products, Sandusky, O., in its new quarters in the Fifth Ave. Bldg., under the direction of Wm. J. Canary, featured balloons, sponge and gas balls, inflated toys, and novelties.

Miller Rubber Products Co., Akron, O., exhibited a complete line of rubber dolls including "My Dolly," "My Darling," "My Mandy," and the new girl-head dolls as well as dolls' clothing such as rubber raincapes and hats. L. L. Cocke and Arthur A. Gerling were on hand.

Pennsylvania Rubber Co. of America, Inc., Jeannette, Pa., represented by Charles H. Wolfe and Tom B. Roberts, showed rubber play and soccer balls, teething rattles, and rubber footballs.

Royal Doll Mfg. Co., Inc., 628 Broadway, New York, N. Y., with M. Donath in attendance, exhibited rubber dolls, bathinettes, etc.

The Schavoir Rubber Co., Springdale, Conn., among its rubber dolls, balls, and toys featured a wide variety of animals and farmyard fowl including a new duck and a standing pig as well as scented playthings for dogs. E. S. Roe, A. L. Schavoir, and Peter Raglan were there to greet visitors.

The Seamless Rubber Co., New Haven, Conn., showed its Swim-Toys, Beach-Balls, play balls, rubber quoits and horseshoes, rain capes, bathing caps, and a complete line of "Pebble-Crepe" rubber bathing suits for women, children, and men.

Seiberling Latex Products Co., Akron, O., displayed nursery gift sets, balls, dolls including renowned Walt Disney characters, bathing caps, fly swatters, and the Ez-Grip Screw Cap Opener. C. W. Simpson was in attendance; while Factory Manager Albert E. Sidnell, in New York on a visit, also was present.

Sun Rubber Co., Barberton, O., represented by T. W. Smith, Jr., and S. S. Frohlich, exhibited rubber dolls, toy sets, teething rings, and other rubber toys.

The Superior Type Co., 3940 Ravens-

wood Ave., Chicago, had its display of sets of rubber stamps under the supervision of George R. Smith.

C. B. Webb Co., 200 Fifth Ave., New York, headed by C. B. and C. A. Webb, showed Weaver health, valve, and scholastic balls.

The Oak Rubber Co., Ravenna, O., at its display at 10 Frelinghuysen Ave., Newark, N. J., in the charge of Walter J. Leatherow, had toy balloons and rubber novelties.

Econo Products, Inc., 52 James St., Rochester, N. Y., under the Econo process makes molded printing matrices and molded rubber printing plates. Company executives are Selden E. May, president and treasurer; I. Schoffman, secretary; Gilbert C. Waters, superintendent; and Theodore C. Browne, chemist.

Eastern Color & Chemical Co., dealer in waste rubber, compounding ingredients, chemicals, and rubber substitutes, has moved to 235 Fourth Ave., New York, N. Y. Charles S. Feinberg is president.

American Zinc Sales Co., Inc., distributer of American Zinc, Lead & Smelting Co.'s products, on April 21 moved from 331 Madison Ave., New York, N. Y., to Room 1001 Graybar Bldg., 420 Lexington Ave.

F. Lester Kittle, Inc., crude rubber broker, on May 1 moved from 24 Stone St. to Room 1201, International Telephone & Telegraph Bldg., 67 Broad St., New York, N. Y.

United States Rubber Co., 1790 Broadway, New York, N. Y., has made H. F. Newell, formerly manager of distributing branches, assistant to Vice President L. D. Tompkins, who recently was named general manager of the tire division. R. Emmet Sheahan, for 5 years manager of automotive sales of the company in Detroit, Mich., was appointed head of all tire operations there. D. S. Villars has joined the Passaic, N. J., plant as physical chemist.

Kelly-Springfield Tire Co. has moved its executive offices from 1775 Broadway, New York, N. Y., to the Chrysler Building, 395 Lexington Ave., New York. Telephone, MUrray Hill 2-6465.

H. Muehlstein & Co., Inc., dealer in crude and scrap rubber, now is in its new offices, 122 E. 24th St., New York, N. Y., on the 16th floor of the Chanin Bldg. The firm moved to this location the better to accommodate its rapidly increasing business. The new quarters comprise a large general accounting room and a suite of 6 smaller connecting offices. These rooms are devoted to private offices of the president, vice president, department managers, and also a sample room and a consultation room for customers. The telephones are AShland, 4-2901 to 2910. Muehlstein also has engaged Prosper E. Cholet to take charge of the firm's development and research in rubber latex.

Rubber Code News

Tire Code

E. D. Levy, president, Fisk Rubber Corp., tire code authority alternate of F. B. Davis, president, United States Rubber Co., resigned last month, but later reconsidered his action and remained on the code authority.

J. W. Whitehead, president, Norwalk Tire & Rubber Co., alternate for J. D. Tew, president, The B. F. Goodrich Co., was displaced by Harry McCreary, president, McCreary Tire & Rubber Co., an alternate for F. R. Seiberling.

John W. Thomas, president, Firestone Tire & Rubber Co., has been definitely designated a member of the tire code authority.

Reclaimed Code

The reclaimed rubber code was approved by the President April 2 and went into effect April 16. It establishes a basic 40-hour work week and fixes a minimum wage for factory labor of 37½¢ an hour. The minima for office workers range from $15 per week in cities of more than 500,000 population, to $12 per week in communities under 2,500. E. G. Holt, assistant chief, Leather-Rubber-Shoe Division, is on this code authority.

Rubber Industry Code

The National Recovery Administration announced April 17 grant of the application of the Aetna Rubber Co. for a stay of that section of the code for the Rubber Manufacturing Industry providing that no member of the industry shall coat or combine fabrics for automobile topping for the jobbing or replacement trades where the customer purchases his own fabrics direct from the textile manufacturers. The stay is for 90 days. It is granted not only for the Aetna, but for other companies engaged in similar work, but with the understanding that they comply with the other code provisions.

F. B. Davis is now serving as a member of the Industrial Advisory Board of the NRA.

Rubber Scrap Trade

At the meeting of the code authority covering the scrap rubber trade, in Washington, D. C., April 10, the following officers were unanimously elected: Edward B. Friedlander, of the Lowenthal Co., Chicago, Ill., chairman and representative at the scrap rubber trade code authority on the waste trade committee; Alex Schulman, A. Schulman, Inc., Akron, O., vice chairman; Julius Muehlstein, H. Muehlstein & Co., New York, N. Y., treasurer; Charles M. Haskins, secretary and assistant treasurer. Mr. Friedlander is vice president of the National Association of Waste Material Dealers, and Mr. Haskins is managing director.

Tire Price War Agreement

President Roosevelt on April 20 approved the following agreement between leading manufacturers and distributers of rubber tires, effecting a 40-day truce, begun April 3, to end tire price wars throughout the country.

A 40-day truce be instituted, beginning 12:01 a. m. April 3, 1934. The signatories to this agreement will reconvene May 1, 1934, to consider extension of this agreement, unless a code is already in effect.

The Goodyear consumers' price list as of February 9, 1934, is to be used as a price base of 100. The Goodyear preferred wholesale list of February 9, 1934, to be used as a base for commercial prices and terms.

Guaranties to remain the same as at present, with the exception that the Western Auto Supply Co. is allowed to issue its new catalogue.

Trade allowances to be as agreed upon in Washington conference of February 5 and 6, 1934.

Manufacturers are to discontinue all "cut back" to dealers on sales effected after March 31, 1934.

There shall be no free goods.

All cut-price comparative advertising to be discontinued as soon as possible, and not later than April 1 in newspapers.

Sears Roebuck, Montgomery Ward, and Atlas to have on all lines a 10% differential off the base prices.

Western Auto Supply Co., Kansas City, Mo., to have a 12½% differential on the base for all lines, except the lowest line, which is to have a 10% differential off the base price.

Pep Boys, Philadelphia, Pa., are to be permitted an 18% differential off the base price for their single line.

Before any party to this agreement shall lower prices to meet competition, he shall notify Leon Henderson, Director of Research and Planning Division, NRA, and if the competition complained of is not adjusted within 48 hours after receipt of proper notice, all parties to the agreement shall have the right to meet this competition.

Tube prices are to remain as listed by each individual concern as of February 24, 1934.

Nothing in this agreement shall be construed as in any way establishing a precedent for provisions of the proposed Retail Tire and Battery Code.

The Barr Rubber Products, Sandusky, O., manufacturer of toys and molded goods, last month moved its New York, N. Y., office from 110 E. 42nd St. to Room 447, 200 Fifth Ave.

R. T. Vanderbilt Co., Inc., 230 Park Ave., New York, N. Y., has acquired from Dewey & Almy Chemical Co., Cambridge, Mass., the exclusive sale of Darvan, a special material for dispersing compounding powders into liquid latex. Darvan is a synthetic organic chemical, slightly alkaline in reaction; it is stable, unaffected by light or heat, and keeps indefinitely. Furthermore it is non-toxic, has no discoloring effect on finished goods, and is without effect on the rate of cure. It does not cause coagulation, but has a moderate stabilizing action on latex. Full descriptive literature on the use of the material is now being distributed.

OBITUARY

Alton Farrel

Prominent Executive

ALTON FARREL, for 30 years a director and treasurer of the Farrel-Birmingham Co., Inc., Ansonia, Conn., died March 28 at his home, 367 Prospect St., New Haven, Conn., after an illness which had caused his retirement from active business over a year ago.

Mr. Farrel was born in Ansonia, August 22, 1879. He was the son of Alton Farrel and grandson of Franklin Farrel, founder of the Farrel Foundry & Machine Co. He attended the Ansonia public schools, later entering St. Paul's School, Concord, N. H., to prepare for college. After graduating from Yale University in 1902, with a degree of B.A., he entered the employ of the Farrel company, which he served in various capacities during the remainder of his life.

Mr. Farrel was also a director in a number of other financial, industrial, and public utility corporations in the Naugatuck Valley and was interested in civic and public affairs. He was president of the Gaylord Farm Association of Wallingford, an institution for the treatment of tuberculosis; president of Ansonia Public Library; director of Pine Grove Cemetery Association; and a senior warden of Christ Episcopal Church.

For some years he was active in political affairs, serving as alderman and mayor of Ansonia, as a member of the Connecticut General Assembly, as a state senator, and as a presidential elector. He was an officer on the staffs of 2 Connecticut governors. During the World War he served in the State Guard and later enlisted in the field artillery, officers' training corps, Camp Zachary Taylor, Louisville, Ky., but the armistice ended hostilities before he was called to active duty.

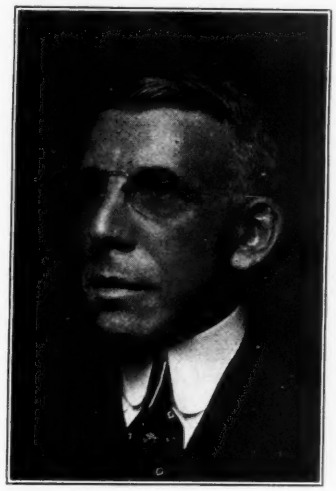
Mr. Farrel was a member of the Union League and Yale Clubs of New York, N. Y., Waterbury Club, Country Club of Waterbury, Pine Orchard Country Club, Race Brook Country Club, New Haven Country Club, Quinnipiac Club, and Graduates' Club of New Haven. He was a 32nd degree Mason and a member of Ansonia Lodge, B.P.O.E.

He is survived by his wife, whose father was a double first cousin of the noted inventor, Thomas A. Edison; 2 sons; and a daughter.

Funeral services were held March 31 at Christ Episcopal Church, with interment at Pine Grove Cemetery, Ansonia.

Kleinert Secretary

ON MARCH 11 died Arthur B. Salinger, Sr., secretary of the I. B. Kleinert Rubber Co., 485 Fifth Ave., New York, N. Y. He had joined the



Arthur B. Salinger, Sr.

firm as an entry clerk and later became a salesman. He was elected an officer in 1912.

Mr. Salinger was born in New York in 1867. He attended Jersey City High School. At the time of his death he belonged to the National Democratic, the Advertising, and the Fairview Country clubs.

Surviving is his son, Arthur, Jr., also with Kleinert.

On March 13 funeral services were held at Central Synagogue, New York, of which the deceased was a member.

Chemical Manufacturer

AFTER several years of ill health William H. Scheel, 85, passed away in his home in Mount Vernon, N. Y., on March 14. He was head of William H. Scheel, Inc., 193 Water St., New York, N. Y., dealing in chemicals, colors, varnish, and other gums, which he founded in 1889.

Funeral services were conducted March 15. Burial was in Greenwood Cemetery, Brooklyn, N. Y.

A daughter survives.

Kleinert Chairman

VICTOR GUINZBURG, chairman of the board of the I. B. Kleinert Rubber Co., 485 Fifth Ave., New York, N. Y., and for many years previously its president, died at his home in Chappaqua, N. Y., March 23 after a long illness. He was born in Annapolis, Md.,

Victor Guinzburg

in 1862, and spent most of his boyhood, except for a few years in Boston, in Clearfield, Pa., where he was graduated from high school, intending to study law. But a disastrous flood caused him to change his plans; so he came to New York and joined a furniture concern. When 25, he was furniture buyer for Bloomingdale Brothers.

Two years later he resigned to go into business with his father-in-law, the late I. B. Kleinert. He soon became an outstanding figure in the rubber industry, constantly inventing new formulas and processes on which he took out many patents. During the war Mr. Guinzburg perfected a gas mask material 3 times as effective as that used by the Allied Armies. These formulas he presented to the Government with suggestions as to the plants best equipped to develop them.

On January 1, 1929, he resigned as Kleinert president and became chairman of the board, but for the past 3 years he was inactive owing to illness.

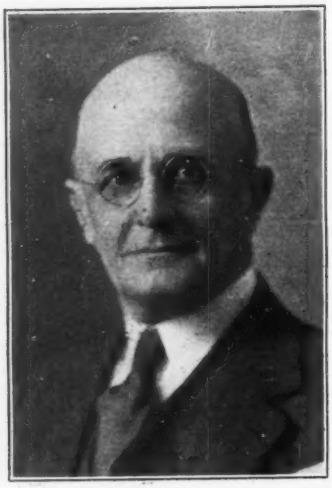
Although Mr. Guinzburg contributed generously to organized charities, his principal gifts were private and rarely known even to his intimate friends. He was a life member of the Mt. Neboh F. & A. M.

Surviving are his widow and 3 sons: Ralph K., Kleinert president; George K., Kleinert vice president; and Frederic V., a sculptor.

Funeral services were held at the home in Chappaqua on March 25.

Veteran Rubber Man

ON APRIL 1, after being ill 6 weeks, died Walter Elbridge Piper, since 1922 treasurer of the Tyer Rubber Co., Andover, Mass. He was born October 8, 1871, at Hyde Park, Mass., and was graduated, a B.Sc., from Massachusetts Institute of Technology in 1894, where he served as an instructor for a while.



Walter E. Piper

The next year he joined the Boston Rubber Shoe Co., Malden, Mass., as chemist, becoming assistant superintendent in May, 1897, superintendent in March, 1906, and general superintendent of both the Malden and the Melrose plants in 1909. During the World War, Mr. Piper was chief of the rubber footwear division of the Quartermasters Corps. For a short time he worked for the Firestone Tire & Rubber Co., Akron, O. Other positions held by the deceased during his lifetime follow: treasurer and general manager, President Suspender Co.; director, Baird & Bartlett Co., First National Bank of Malden, Tyer Rubber Co., The Wellman Co., and Morris Plan Bank of Malden; trustee, Malden Savings Bank; and chairman, Sudbury, Mass., finance committee. He also belonged to the Delta Upsilon Fraternity.

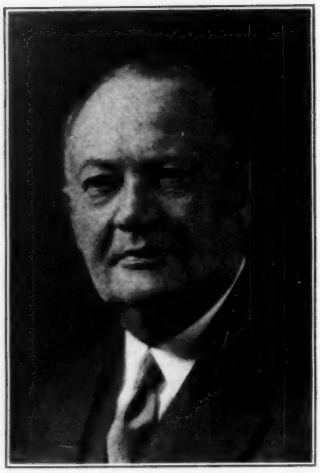
Surviving are his widow, 2 daughters, a son, and 5 grandchildren.

Funeral services were held at the Piper home in Sudbury on April 4.

Noted Industrialist

A HEART attack on March 27 caused the death of Fred A. Geier, since 1926 president of the Cincinnati Rubber Mfg. Co., Cincinnati, O., at his home in that city. Mr. Geier, well known as a philanthropist and industrialist, was also prominent in civic affairs.

He was born in Cincinnati on June 23, 1866, and was graduated from Woodward High School in 1884. In



Fred A. Geier

1886 Mr. Geier entered the banking business in Newton, Kan., but returned to his native city the next year and joined the Cincinnati Screw & Tap Co., which in 1889 became the Cincinnati Milling Machine Co., of which he was president at the time of his death.

His other connections follow: president, Ohio Mechanics Institute, National Machine Tool Builders Association, 1910 and 1911, Factory Power Co., and Cincinnati Morris Plan Bank; director, Lincoln National Bank, Central Trust Co., Cincinnati Bickford Tool Co., Century Machine Co., Cincinnati Realty Co., and Cincinnati Model Homes Co.; an organizer of National Metal Trades Association; chairman, Council of Social Agencies, 1913 to 1915, and Central Budget Committee, 1915 to 1917; trustee, University of Cincinnati; member, executive committee of Community Chest, 1917 to 1934, American Society of Mechanical Engineers, National Society for Promotion of Industrial Education, chambers of commerce of the United States and of Cincinnati, and Engineers, Queen City, Commercial, Optimists, Cincinnati, Cincinnati Country, and Camargo clubs.

The deceased leaves behind his widow, 2 sons, 2 daughters, 3 brothers, and 2 sisters.

R. D. Wood President

ON APRIL 20 in Washington, D. C., died Walter D. Wood, president of R. D. Wood & Co., machine manufacturer, Philadelphia, Pa., from heart disease following an illness of 2 weeks. He was also head of the Florence (N. J.) Pipe Foundry & Machine Co.; owner of *The Milville (N. J.) Daily Republican;* and owner and treasurer of the Cumberland County Gas Co., Milville Electric Light Co., Milville Water Co., and the High Pressure Construction Co. He was also prominent in civic affairs.

Mr. Wood, who was 84, was graduated from Haverford College in 1867 with a B.A. Then he took 2 years of post-graduate work at Harvard University.

A bachelor, the deceased is survived by his niece and 2 nephews.

Funeral services were held in Philadelphia on April 23.

Advertising Editor

A HEART attack, following several months of ill health, on April 11 caused the death of Guy Blanchard, 64, former advertising manager of Miller Rubber Co. and editor of sales publications for The B. F. Goodrich Co., both of Akron, O. Mr. Blanchard came to Akron in 1925 from Chicago where he had engaged in editorial and trade publications work for 30 years. He was

Guy Blanchard

formerly a member of the Chicago Press Club and trade paper editor for the Chicago Garment Manufacturers Association.

He is survived by his widow, a daughter, his mother, a brother, and 2 sisters.

NEW ENGLAND

National Sherardizing & Machine Co., Hartford, Conn., has named Wesley I. Charter, chairman of the board from 1925 to 1933, as president and treasurer, succeeding the late August F. Schoen. Other executives follow: Frank F. Schoen, vice president and general manager; John F. Forward, secretary; John E. Johnson, plant superintendent; and John D. Woolam, manager of the Akron, O., plant.

Essex Wire Corp., Detroit, Mich., on April 20 scheduled the permanent shutdown of the Wallington, Conn., plant of the New York Insulated Wire Co. because of lack of business and taxation troubles.

Diana Scott, daughter of Henry L. Scott, head of Henry L. Scott Co., Providence, R. I., was married on April 28 to Wm. Chesley Worthington, of the editorial staff of the *Providence Journal.*

(Continued on page 58)

Rubber Industry in Europe

GREAT BRITAIN

1933 Rubber Trade

Great Britain's 1933 rubber trade was improved as compared with 1932. Imports of crude rubber and exports of manufactured goods increased, while imports of rubber goods decreased.

Crude rubber imports totaled 2,272,080 centals of 100 pounds in 1933 against 2,110,513 centals in 1932; while reexports were only 630,267 against 1,134,745 centals.

Tire imports substantially increased against 1932 imports in all lines except solid tires. The value of automobile covers was £108,099 against £67,460; covers for motorcycles and tricars, £7,819 against £2,532; cycle covers, £20,321 against £7,601; inner tubes £16,323 against £10,080. Solid tire imports came to £18,435 against £29,878.

Tire exports included covers, £2,980,117 against £2,929,819; inner tubes £396,293 against £344,025; and solid tires £40,741 against £39,621. Great Britain's best customers for tires were her own possessions: British South Africa, India, and New Zealand taking about 27% of the total; while on the Continent, Denmark was the most important buyer.

Footwear imports and exports declined, the former amounting to 862,173 dozen pairs, value £866,202, against 993,981 dozen pairs, value £894,587; while the latter totaled 116,336 dozen pairs, value £134,837, against 153,475 dozen pairs, value £191,017. Similarly waterproof apparel fell from £4,372 to £1,335, and exports from £643,176 to £623,151. Imports of belting other than leather, woven hair, or cotton were £24,639 against £27,460; exports of balata belting, £86,680 against £83,916; and of other kinds, not including leather, cotton, or woven hair, £197,732 against £166,323.

Imports of rubber-insulated wires and cables not for telephone or telegraph dropped from £106,389 to £87,293. Exports of this class of goods were £700,742 against £621,762; of telephone and telegraph cables, not submarine, £259,083 against £222,760; submarine cables, £128,710 against £130,680. Other rubber manufactures to a value of £917,014 were imported in 1933 against £890,772 in 1932; while exports were £1,926,894 against £1,751,865.

Rubber in Decoration

The various applications of rubber in the decorating and the furnishing trades were discussed by H. P. Stevens in a paper read before the Incorporated Institute of British Decorators at a recent meeting in London.

Paints, both flat and gloss, containing rubber are greatly improved as regards brushing qualities and finish, on the one hand, and non-settling of the pigments on the other. Various modified rubbers and rubber derivatives are replacing expensive gums and resins in enamels; while emulsions of rubber solutions and glue or casein solutions have a beneficial effect on the quality of distempers.

Rubber for wall panels may be of colored ebonite or thin, soft, vulcanized sheeting. Rubber also appears in a new type of wallpaper, which really consists of cotton-wool, uniformly impregnated with latex and dried. The product is said to be very tough, strong, and water-resistant, and is to a certain extent washable. Ebonite doorknobs and furniture fittings, ebonite covered ply-wood and steel for partitions and roofing are now also known.

The growing use of rubber flooring will probably be further stimulated by the recently discovered facts, first that it is as useful for sound absorption as any other flooring (superior to many, in fact), and secondly that the bacterial resistance is good. Since scientific tests show the microbial content of both used and unused rubber sheets is low and almost confined to the surface layer, increased use for rubber in hospitals may be expected.

With latex paste compositions, jointless, resilient floors, either natural, colored, or marbled, can be laid, and terrazzo effects can be obtained by embedding particles of colored rubber, glass, etc. in the plastic before setting. Similar latex plastics have been proposed for decorative wall coverings or as cements for fixing tiles to walls, and a recent improvement permits spraying the paste.

Sponge rubber is entering previously undreamed of fields. A new product, sponge cork, has been developed for machinery insulation. It is also proposed for use in expansion joints in concrete roads. A special type of gas-expanded sponge rubber (nitrogen gas expanded), much lighter than ordinary sponge, is available in a soft form for mats and carpets and as expanded vulcanite for airplane and speedboat construction, wall paneling, refrigeration, etc.

Rubber Powder

The powder of the newly formed Rubber Powder Co. is obtained by the following process. The latex, as it arrives from the field, is stored in containers from which it is drawn in pipes to nozzles through which it is forced by air pressure in a more or less fine spray, as required. The drops of latex are caught on an endless stainless steel conveyer band that passes through a drying chamber. On returning from the drying chamber, the dried rubber, adhering to what has now become the under surface of the conveyer, is moved along to special rolls which rub it off into a hopper. The rubber, now in the form of a fine crumb resembling fine sawdust, is ready for packing and shipping. According to the London *Rubber Age*, special machinery for carrying out the process has been designed and has already been sent to Ceylon.

Holland

Heurn and Begheyn, of the laboratory of the Bataafsche Petroleum Mij., Amsterdam, Holland, discuss[1] 6 different methods of combining asphalt and rubber, as follows:

1. Crude rubber is combined with less than 20% of asphalt, usually mineral rubber, with the help of mixing machines, the asphalt serving as softener or to improve or cheapen the final product.

2. More than 20% of rubber is mixed with asphalt in mixing or kneading machines. While still unvulcanized, the product can be sprayed into threads, sheets, tubes, etc. When vulcanized, elastic or leatherlike products, depending on the fillers added, are obtained for which there is as yet only a limited field of use.

2a. A process similar to that in 2, with less than 20% of rubber included, yields a product of considerable brittleness, sometimes greater even than that of unmixed asphalt.

3. Latex and asphalt emulsion are mixed, and the resultant product dried or coagulated. Such combinations frequently have unusual properties even when very little rubber is added. They have been recommended for road surfacing, industrial purposes, also in building; however the oxidation of these mixes is still a factor limiting their use.

4. Melted asphalt is mixed with rubber in organic solvents; such mixtures have long been used in the varnish industry and in the manufacture of protective coatings for metals. By using different solvents, adding sulphur or fillers, an unlimited number of products

[1] "Asphalt-Kautschuk-Mischungen," *Kolloid-Z.*, Feb., 1934, pp. 219-28.

can be obtained, some of which are useful for industrial purposes.

5. Finely divided rubber, vulcanized or not, is added to melted asphalt, and the temperature raised until the rubber is completely dissolved in the asphalt.

In recent years this last method attracted much attention, and a wide variety of experiments, yielding more or less useful products, have been conducted in different countries. Thus Universal Rubber Paviors, Ltd., (England), makes products with high adhesive power from low-grade rubbers dissolved in asphalt, and the company's Rubgrip and Rubgroute, used in laying its Gaisman blocks, are thought to be similar asphalt and rubber combinations. Another product of this type is Irgacol, the value of which, however, is still problematic. The French investigator, Reiné, has proposed utilizing the adhesive power of such compounds in joining paving blocks to each other and fixing them to the road bed; he would also add suitable fillers to the compound and then use it for road surfacing. Finally, the possibility of using such mixtures for spraying on roofs, walls, roads, tennis courts, etc., has been suggested.

In view of the special interest in method 5, Heurn and Begheyn undertook a series of tests to show the effect of dissolving the rubber in the asphalt by heating at different temperatures, and particularly to determine how much rubber is decomposed in the process and to what extent the non-decomposed rubber improves the properties of the asphalt. The authors, using first finely ground grey tires and blown asphalt (melting point, Ring & Kugel, 107°) showed that tendency to flow of the asphalt was very considerably reduced when the rubber was dissolved in the asphalt at temperatures below 140° C., but that this improvement diminishes as the temperature is increased until a stage is reached where the beneficial effect of the rubber disappears, and an increase in the tendency to flow is noted.

Preliminary tests of this kind with crude crepe rubber and Spramex showed similar results, except that somewhat higher temperatures could be used than with vulcanized rubber, thus indicating a wider field of use for mixtures containing crude rubber.

Germany

The new dispensation in Germany appears to have caused increased production in the automobile industry. At any rate various manufacturers demonstrated at the International Automobile and Motorcycle Exhibition, Berlin, March 8 to 18, 1934, how their output had risen under Hitler's government. Greater output here means a greater demand for tires; and tire producers were stimulated to special efforts in arranging their stands. At the show it was noted that the super-balloon tire, especially a modified type, is continuing to make headway. The efforts to develop the use of rubber tires for horse-drawn vehicles, especially in the country, promises a revival in the demand for the so-called elastic tire (semi-solid).

Various types of machines for regrooving worn tire treads were exhibited. The Christophorus apparatus can be wheeled out to the car, pressed against the tire, and the latter, without having to be demounted, is grooved as it revolves.

A feature at the show was Continental's graphic demonstration of the great number of rubber parts now in an automobile. This firm also displayed its so-called "Schwingmetall," rubber bonded to metal. Other rubber-to-metal systems were also on view. It appears that while the American process uses brass plating to secure adhesion between rubber and metal, a newer German method employs haemoglobin when an intermediate brass plating becomes unnecessary.

Various automobiles have been equipped with the Flexosecur bearings having an upper and lower cap connected by a rubber block through which passes a confining pin to prevent excessive spring of the bearing. The Ehrhardt concern exhibited its modification of a French type of rubber bearing consisting of concentrically coiled soft rubber enclosed between 2 steel tubes.

Other items attracting attention were a double-treaded tire of the Seiberling type, shown by the Gummiwerk Fulda, and horse hair upholstery in which each individual hair is coated thinly with rubber, giving a very springy yet firm product, displayed by Ebro, Erste Berliner Rosshaarspinnerei.

After February 25 and until December 31, 1934, no new works may be established in Germany to manufacture insulated cables, and no existing works may expand without special government sanction.

The former directors of the Dartex A.G. für Kautschuk Verarbeitung, Frankfurt a.M., Alfred Merton, Frankfurt a.M., E. A. Hauser, Vienna, Austria, and Bradley Dewey, Cambridge, Mass., U. S. A., have resigned.

The Achema's annual for 1931 to 1934 describes the different products to be seen at the Achema VII, being held at Cologne, May 18 to 27, 1934, and also reviews the present state and progress of chemical apparatus. On application those interested in the exhibition receive this work gratis. During the Achema Exhibition the Verein Deutscher Chemiker and about 20 other societies will meet in Cologne.

Other European Notes

The success of the Michelines on the trip in northeastern France has led the Compagnie du Nord to put Michelines also on the Tourcoing-Paris and return route, starting May 15.

The French Government has decreed that as from May 6, 1934, various goods entering France from abroad must bear clear and conspicuously placed indication of origin. Practically all kinds of rubber goods are affected.

Le Coussin Alveole Croix de Lorraine, Reuil-Malmaison (Seine-et-Oise), with capital of 1,100,000 francs, has been formed to manufacture seats, cushions, and mattresses of sponge and ordinary rubber.

The Finland Rubber Goods Factory is reported to be planning a branch in Reval, Esthonia, in which the Esthonian leather concerns Union and Globus also will be interested. At present Esthonia has only one rubber goods factory, which, however, already seems to be supplying the greater part of the local requirements.

Societa Italiana Pirelli again declared a 10% dividend and will increase its capital to 200,000,000 lire. The Finance Holding Pirelli & Co., Milan, capitalized at 24,000,000 lire, also declared a 10% dividend; while the Belgian branch in Brussels will turn out 75 francs per share of 500 francs.

Norway now has her first factory producing various types of rubberized fabrics, the Norsk Gummitekstil A.S., Fredrikstad. Previously all such fabrics had to be imported.

For the year ended June 30, 1933, the Pepege concern of Graudenz, Poland, booked a loss of almost 1,000,000 zloty, which brings the total loss to 3,500,000 zloty. The company's capital is 3,000,000 zloty. At a recent stockholders' meeting it was decided to reduce this capital to 1,500,000 zloty and then to increase it again to 6,000,000 zloty by issuing 4,500,000 zloty new shares. The principal creditors will take over the new issue on account of their claims.

CANADA

Gutta Percha & Rubber, Ltd., Toronto, Ont., recently installed a 68-inch rubber belt at the plant of the International Paper Mills, Dalhousie, N. B., to replace a chain haulage system for carrying pulpwood logs to the mill. This belt is believed to be a record in the production of rubber belting for a new use. Two similar systems were placed in service in Restigouche, N. B., but the width of this belt makes it larger than any other manufactured so far in the Dominion.

National Mfg. Co., 265 Dundas St., London, Ont., Canada, handles rubber druggists' sundries, molded products, toys, and household items. S. S. Hudgell is proprietor, and W. J. Anderson, purchasing agent.

Pioneer Carbon Black Co., Craigmyle, Alta., headed by C. R. Ecklin, this spring will start construction of the first commercial carbon black plant in Canada expected to be in production by July. Associated with Mr. Ecklin are Russell Johnson, R. C. Burns, and John Sherman.

(*Continued on page* 74)

Rubber Industry in Far East

NETHERLANDS EAST INDIES

Preparing for Restriction

The Central Bureau of Statistics has sent all owners, directors, and agents of rubber estates in the Netherlands East Indies 2 forms to be filled out to furnish data that may be required as the basis for fixing the quotas of estates in the event of restriction.

Average Yields

Yields obtained in test tapping a few selected trees, especially seedlings, do not always furnish reliable indications of yields that may be expected in practice from a given area, A. van Leeuwen showed in a talk before the Soekaboemi Planters' Association. Young plants from Tjikadoe and Pataroeman seed were carefully planted on 99 acres in March, 1928. In 1931, when the trees were 3½ years old, 30 selected for test tapping gave very satisfactory yields when compared with the yields from clones Ct.88 and Aj.1, of the same age, and continued to do so through 1932 and 1933. When the area was regularly tapped, however, the average output for 1933 worked out at 177 kilos per acre, or only 57% of the output expected on the basis of the yields obtained from the experimental trees.

If this discrepancy can arise where calculations were based on yields from 30 trees, says Mr. van Leeuwen, what are we to expect from buddings judged on the basis of figures from only 2 trees, as Tjir.1. for instance? But he immediately admits that buddings of the same clone vary much less than do seedlings as to yields and gives figures to show that some of the best known clones as BD2, BD5, and BD10 are not usually disappointing.

The speaker further observed that whereas average yields for 20 to 30-year-old trees are about 375 kilos per bouw, this amount is already obtained from present-day 5 to 6-year-old trees from ordinary seed as well as from seed from selected mother trees and suggests that one reason for this difference is that the older trees were probably thinned out too drastically in their time.

He gives interesting figures from various estates which show that seedlings from mother-tree seed give yields as good as those from Pataroeman seed (from isolated gardens), although there are indications that as the latter grow older, the rate of increase in yields becomes greater than for the former. In one case trees from mother-tree seed gave about 980 pounds per bouw at 10½ years.

On 3 of the 4 estates that A. van Leeuwen discussed with regard to Pataroeman seedlings, he mentioned that in planting out this material the number of failures was great, and repeated supplying was necessary, which condition appears to indicate a certain feebleness.

Coagulants

At the same meeting I. R. van Dillen spoke on coagulants. Acetic acid, once the most generally used coagulant in the Far East, has for the most part been supplanted by formic acid as the latter costs only about half as much to use. Some estates, however, continue to use acetic acid because it is claimed it does not attack iron, paint, tiles, or cement as much as does formic acid; no complaints arise about painful hands or feet when it is used, and there is less wear on the rolls. The introduction of a Japanese acetic acid considerably cheaper than the usual kind might have revived the use of acetic acid if at the same time the Japanese had not also put on the market a formic acid, which, though slightly weaker than the European article, is not only of good quality, but also is considerably cheaper.

The use of sodium silico-fluoride as coagulant is restricted to a few estates in Deli. For the efficiency of this coagulant very dilute latex is a prerequisite and, unfortunately, it separates in the aqueous solution, forming fluoride of hydrogen, which attacks aluminum.

Sulphuric acid has never been recommended by the Experiment Stations in the Netherlands East Indies although it is cheaper than most coagulants. The reasons are that a slight excess of the acid markedly affects the inner qualities of the rubber; while it cannot easily be handled, or is it without danger.

The difficulty of obtaining acetic acid during the World War led to tests with sugar as a coagulant. Recently the low price of sugar led to renewed tests in this direction. The addition of sugar to latex gives a spongy coagulum that can only be worked into crepe which must then be soaked in a bisulphide solution for some hours to give it a good color. The difficulties attending this method led to tests with fermented sugar solutions; finally a sufficiently acid liquid was obtained with the further advantage of costing less than half that of formic acid. But when large-scale experiments were attempted, it developed that the installation necessary for preparing the new coagulant would be too cumbersome; consequently no propaganda has as yet been made for sugar as a coagulant.

A German preparation called First Para Maker proved hard to handle, and though the sheets made with it seemed to resist mold well, they were unsightly, and the preparation is not recommended.

Alum for coagulating purposes is only used by the natives. It is a very cheap coagulant to use, but is very harmful to the inner qualities of rubber.

Non-Slipping Sole Crepe

Unvulcanized, non-slipping sole crepe, according to an invention of the Bandar Rubber Mij., Amsterdam, Holland, is prepared as follows. Human hair or sheep's wool, cut in lengths of 1-10 mm., is mixed thoroughly with latex in the proportion of 1:4 or 1:5 (by weight) according to the type of product desired. The well-stirred mixture is then allowed to coagulate as usual; the coagulum allowed to dry somewhat, rolled, and otherwise treated like ordinary crepe. The wool fibers and hair have proved to be particularly suitable, it is said, since the benzine used for adhesive purposes will not affect them; in addition they are strong, will not split, and have unusually great elasticity. By adding colors to the latex, the product can be tinted as desired.

The new sole, it is claimed, is light, flexible, cheap, porous, waterproof, and sufficiently rough to have a good gripping surface and, consequently, to prevent slipping; while finally it has good wearing qualities.

Sulphur Dusting for *Oidium*

Replying to questions regarding sulphur dusting to combat *Oidium*, put forward at a meeting of the Kediri planters, Dr. Pfaltzer said that since it takes about 2 days for the effect of sulphur to be noticed even when there has been direct contact, it is not advisable to spray when rain may be expected on the same day. It was further remarked that the success of sulphur dusting was very much influenced by weather conditions. As a preventive, sulphur has no effect, and spraying should not be begun until 15 to 20% of the trees show young leaf. Most planters were of opinion that even under present conditions sulphur dusting was economically sound since an increase in production of as little as 2½ to 3% would pay the costs.

MALAYA

Small Native Plantations

The average European planter in Malaya usually believed that production on native holdings was bound sooner or later to decrease very substantially owing to excessive rate of bark consumption, wounding, moldy rot, and general insanitary conditions. At the suggestion of the Rubber Growers' Association an investigation on the subject was started in 1931 and continued to the early part of 1933. In a recent publication, "Bark Consumption and Bark Reserves on Small Rubber Holdings in Malaya," H. D. Meads, who was in charge, gives the results of this work.

Altogether 90 small holdings in the Federated Malay States, Kedah, Johore, Malacca, and Province Wellesley were selected for observation over a period of 13 months. Each holding was chosen as representative of an area of about 10,000 acres of small holding rubber; care was taken to select those which were typical in every respect of the majority of holdings in each locality. The holdings varied in size from 62 acres to less than one acre, the average being 10.25 acres. The age of the trees ranged from 8 to 21 years, but almost half were from 16 to 18 years, and the average over all, 16 years. Planting distances showed the greatest variations from 544 trees per acre at distance of 8 by 10 feet to 80 trees per acre at distances of 13 by 30 feet; the average stand was 211 trees per acre at distances of 13 by 16 feet.

The tapping system usually followed was a single cut over ⅓ the circumference, found on 82% of the holdings; while tapping was largely done by outside help on a profit-sharing basis. The number of holdings tapped by owners or their families was only 30.

In some cases remarkable yields appear for these little gardens, maximum yields of 882 and 889 pounds per acre being recorded. Against this figure, however, must be set minimum yields of 235 and 192 pounds per acre, bringing the average to 477 pounds per acre, still a satisfactory figure.

Coming to the main object of the investigation, Mr. Meads shows that the holdings are not likely to suffer from an excess of bark consumption over bark renewal. On the contrary he emphasizes that these trees averaging 16 years of age, many of which probably were brought into tapping at under 5 years, still have enough bark available to permit tapping for another 7 years and 5 months without allowing for the factor of renewal. This favorable condition is largely due to the fact that the native's habit of planting a large number of trees per acre permits him to keep a considerable proportion out of tapping for more or less prolonged periods. Mr. Meads' figures show that an average of 22% of the trees were rested for at least a year.

As to moldy rot, only 30% of the holdings observed were uninfected; while on 36% the disease was active, and on 34% had been present in the past. Nevertheless it is not considered that even prolonged neglect in treating the disease will render any large area of rubber on the small holdings permanently unproductive. In other words conditions on the small holdings are not so desperate as supposed, and native rubber is here to stay.

Tan Kah Kee in Liquidation

The well-known Chinese concern Tan Kah Kee & Co., Ltd., one of Singapore's most important manufacturing and industrial enterprises, is in liquidation. Tan Kah Kee, called the Henry Ford of Malaya, started 30 years ago with the erection of a small rice mill at Geylang. By degrees he extended his activities until at one time he employed 15,000 people in his various undertakings, which included pineapple, soap, and biscuit factories, rubber mills all over Malaya, a 1,300-acre rubber estate, a tannery, brickworks, etc. As a producer of rubber goods, however, Tan Kah Kee is chiefly known. Until quite recently almost 6,000 persons were employed in his Singapore rubber goods factory where mainly rubber shoes, sold all over the world, were made. In China he had about 30 sales branches.

It is an odd commentary on the workings of tariffs that the heavy duties imposed by China on imports of rubber goods about the middle of last year as a measure against Japanese dumping should have succeeded in killing the business of a Chinese in Singapore. For Tan Kah Kee had to close up 17 or 18 of his retail branches in China on account of the new duties. Ironically enough, we learn that the Overseas Committee of the Nanking Government has instructed the Consul and the Chinese Chamber of Commerce in Singapore to find means of assisting the Tan Kah Kee factories. It is, however, not expected that it will be possible to do anything here.

Edmund Billings

NEW ENGLAND

(*Continued from page* 54)

The West Co, Chelsea, Mass., of which H. T. West is president and William Soherr secretary-treasurer, having purchased all formulae, machinery, and equipment for manufacturing and compounding rosin oils and pitches formerly owned by the H. T. West Co., will conduct the business under the present name.

H. T. West, in the business since 1891, has personally developed many formulae of value. The company maintains a testing laboratory for samples and specialties in quality products, such as acid and copper free Burgundy pitch and resins for use in medicated plasters, etc. The firm also operates an elaborate plant for the refining of tar.

Naugatuck Chemical Co., Naugatuck, Conn., in its laboratory and sales service has taken on Gordon Collins, formerly chemist with the E. H. Clapp Rubber Co., Hanover, Mass.

Vultex Chemical Co., manufacturing and selling subsidiary of the Vultex Corp. of America, 666 Main St., Cambridge, Mass., recently made K. B. Osborn sales manager. F. C. Batchellor, besides handling the New York metropolitan and northern New Jersey districts, will do all of New Jersey and the Philadelphia territories in place of Robert Loveland, who was assigned to cover New England.

Paul Coste, Inc., Providence, R. I., of which Paul Coste, formerly with the United States Rubber Co., is president, has taken over the entire business of rubber and asphalt tile flooring from U. S. Rubber. The same personnel in field and factory will continue the manufacture and the sale of these products, including Durite and Royalite flooring, interlocking tile, and mats and matting.

Godfrey L. Cabot, Inc., 940 Old South Bldg., Boston, Mass., has added 5 new self-clearing gravity-type tank cars to handle carbon black in bulk in the Texas Panhandle. This fleet now numbers 10 units, each of which shows the identifying Cabot black cat and the trade name Spheron. Cabot directors elected Edmund Billings a vice president of the corporation. He is very well known among manufacturers of rubber, paint, and ink products in the United States and abroad, as Cabot sales manager for the past decade. Mr. Billings has been especially active in the chemical engineering branch of his field, having been closely identified with the invention of the method of producing Spheron, a rubber black which has made bulk handling practical in the rubber industry; Charon, a black pigment for concrete; and several other advancements in the form and uses of carbon black. Mr. Billings is a graduate of Harvard (A.B., 1919), is married, and is the father of 4 children. He has his residence in Weston, Mass.

Patents and Trade Marks

MACHINERY

United States

1,947,974. **Bead Ring Former.** H. A. Denmire, assignor to General Tire & Rubber Co., both of Akron, O.

1,947,986. **Printing Die.** L. M. Harley, Brooklyn, N. Y., assignor to James H. Matthews & Co., a corporation of Pa.

1,947,990. **Hollow Article Former.** E. Hopkinson, New York, N. Y., assignor to United States Tire Co., Inc., Indianapolis, Ind.

1,948,000. **Ply Cutter and Assembler.** G. K. McNeill, assignor to Morgan & Wright, both of Detroit, Mich.

1,948,011. **Molded Strip Vulcanizer.** C. E. Siegfried, Sandusky, O., assignor, by mesne assignments, to Construction Materials Patents, Inc., a corporation of O.

1,948,035. **Annular Collapsible Form.** F. L. Johnson, Akron, O.

1,948,081. **Battery Plate Separator Apparatus.** J. R. Silver, Jr., Akron, O., assignor to B. F. Goodrich Co., New York, N. Y.

1,948,302. **Tire Shaper and Airbag Inserter.** R. S. Kirk, Akron, O., assignor to Wingfoot Corp., Wilmington, Del.

1,948,344. **Heel Mold.** W. Fischer, Akron, O., assignor to Wingfoot Corp., Wilmington, Del.

1,948,491. **Brake Lining Former and Curer.** C. P. Brockway, Ridgewood, assignor to World Bestos Corp., Paterson, both in N. J.

1,948,607 and 1,948,608. **Mandrel.** A. O. Abbott, Jr., assignor to Morgan & Wright, both of Detroit, Mich.

1,949,066. **Slitter.** H. E. Waner, Akron, O., assignor to B. F. Goodrich Co., New York, N. Y.

1,949,072. **Plastic Material Mold.** J. H. Clarke, Watertown, Mass., assignor to B. F. Goodrich Co., New York, N. Y.

1,949,084. **Tuber.** V. Royle, Paterson, N. J.

1,949,175. **Sponge Rubber Strip Curer.** F. M. Netzel, assignor to Frost Rubber Works, both of Chicago, Ill.

1,949,199. **Industrial Process Controller.** E. B. Foote, assignor to Taylor Instrument Cos., both of Rochester, N. Y.

1,949,226. **Continuous Vulcanizer.** A. L. Wallace, Brooklyn, N. Y.

1,949,236. **Winder.** F. W. Bommer, Winchester, assignor, by mesne assignments, to Sibley-Pym Corp., Lynn, both in Mass.

1,949,275. **Belt Vulcanizer.** J. C. Heintz, Lakewood, O.

1,949,443. **Tire Shaper.** A. O. Abbott, Jr., Grosse Pointe Park, assignor to Morgan & Wright, Detroit, both in Mich.

1,949,472. **Fibrous Material Apparatus.** E. Hopkinson, New York, N. Y., assignor to Naugatuck Chemical Co., Naugatuck, Conn.

1,949,473. **Annular Article Mold.** E. Hopkinson, New York, N. Y., assignor to United States Tire Co., Inc., Indianapolis, Ind.

1,949,501. **Tire Rim.** S. P. Thacher, assignor to Morgan & Wright, both of Detroit, Mich.

1,949,502. **Hollow Article Mold.** A. Szegvari, assignor to American Anode, Inc., both of Akron, O.

1,949,537. **Cement Sole-Attacher.** S. J. Finn, Beverly, Mass., assignor to United Shoe Machinery Corp., Paterson, N. J.

1,949,752. **Tire Building Drum.** C. E. Maynard, Northampton, assignor to R. W. Boyden and C. A. Dana, receivers for Fisk Rubber Co., all of Chicopee Falls, all in Mass.

1,950,105. **Elastic Thread Winder.** C. Faure-Roux, assignor to Etablissements Ch. Faure-Roux, both of St.-Chamond, France.

1,950,357. **Centrifugal Separator.** A. W. Empson, London, assignor to J. Stone & Co., Ltd., Deptford, both in England.

1,950,868. **Centrifugal Bowl.** G. J. Strezynski, Poughkeepsie, assignor to De Laval Separator Co., New York, both in N. Y.

1,950,920. **Rotary Cutter.** H. Gora, Bridgeport, Conn., assignor to Jenkins Bros., New York, N. Y.

1,951,029. **Thread Former.** E. A. Murphy and W. G. Gorham, assignors to Dunlop Rubber Co., Ltd., all of Birmingham, England.

1,951,181. **Rope Strand Separator.** H. T. Battin, Ridgewood, N. J., assignor to Revere Rubber Co., Providence, R. I.

Dominion of Canada

339,538. **Tire Retreader.** Super Mold Corp., assignee of H. J. Woock and J. S. Caufield, all of Lodi, and C. J. Peterson, Sacramento, co-inventors, all in Calif., U. S. A.

339,662. **Hinged Mandrel.** Dominion Rubber Co., Ltd., Montreal, P. Q., assignee of A. O. Abbott, Jr., Argentine, Mich., U. S. A.

339,682. **Rubber Thread Apparatus.** International Latex Processes, Ltd., St. Peter's Port, Channel Islands, assignee of E. J. Joss, Bristol, R. I., U. S. A.

339,713. **Winder.** Sibley-Pym Corp., Lynn, assignee of A. F. Pym, Beach Bluff, both in Mass., U. S. A.

339,773. **Dipped Goods Form.** J. R. Gammeter, Akron, O., U. S. A.

340,037. **Centrifugal Separator.** De Laval Separator Co., New York, N. Y., U. S. A., assignee of H. O. Lindgren, Appelviken, Sweden.

340,041. **Vulcanizer.** Dominion Rubber Co., Ltd., Montreal, P. Q., assignee of C. J. Randall, Naugatuck, Conn., U. S. A.

United Kingdom

401,486. **Vulcanizer.** Macintosh Cable Co., Ltd., Normanton, R. F. D. Milner, Littleover, and T. Elder, Derby.

401,529. **Electric Conductor Extrusion Machine.** Liverpool Electric Cable Co., Ltd., and T. H Tweedle, both of Liverpool.

401,981. **Rubber Mixer.** Firestone Tyre & Rubber Co., Ltd., Middlesex. (Firestone Tire & Rubber Co., Akron, O., U. S. A.)

402,077. **Tube Cutter.** India Rubber, Gutta Percha & Telegraph Works Co., Ltd., Aldwych, and F. C. Matthews, F. E. Brown, and J. W. H. Pengelly, all of London.

402,155. **Rubber Spring Vulcanizer.** G. Spencer Moulton & Co., Ltd., and A. Spencer, both of Westminster.

402,195. **Tube Extrusion Machine.** Goodyear Tire & Rubber Co., Akron, O., U. S. A.

402,652. **Thread Winder.** Dunlop Rubber Co., Ltd., London, and H. Willshaw, Birmingham.

PROCESS

United States

1,947,539. **Forming Ball Centers.** D. F. Twiss and A. E. T. Neale, both of Birmingham, England, assignors to Dunlop Rubber Co., Ltd., a British corporation.

1,947,636. **Paper Machine Roll.** E. E. Berry, assignor to Beloit Iron Works, both of Beloit, Wis.

1,947,695. **Flexible Shaft Coupling.** J. W. Carthew, assignor to Westinghouse Air Brake Co., both of Wilmerding, Pa.

1,947,759. **Twisted Fibrous Product.** E. N. Cunningham, Akron, O., assignor to B. F. Goodrich Co., New York, N. Y.

1,947,870. **Ornamental Surface from Dispersed Media.** E. A. Murphy, Birmingham, and E. W. B. Owen, Walmley, both in England, assignors to Dunlop Rubber Co., Ltd., a British corporation.

1,947,871. **Articles from Aqueous Dispersions.** E. A. Murphy and R. G. James, both of Birmingham, assignors to Dunlop Rubber Co., Ltd., London, all in England.

1,947,949. **Rubber Poor in Albumen.** H. Miedel, Frankfurt a. M., Germany, assignor to Revertex, Ltd., London, England.

1,948,046. **Closed Cell Cellular Rubber and Ebonite Article.** M. P. H. L. Raepsaet, Aurec-sur-Loire, France, assignor to Societe Belge du Caoutchouc Mousse, Berchem-Ste-Agathe, Belgium.

1,948,138. **Creping Rubberized Material.** J. J. Sindler, assignor to Hodgman Rubber Co., both of Framingham, Mass.

1,948,311. **Tire Assembly.** C. B. Orr, assignor to General Tire & Rubber Co., both of Akron, O.

1,948,620. **Forming Appliques.** L. De F. Hokerk, Utica, N. Y.

1,949,034. **Leather Substitute.** S. Yamamoto, Tokyo, Japan.

1,949,057. **Rubber Article.** C. W. Leguillon, Akron, O., assignor to B. F. Goodrich Co., New York, N. Y.

1,949,159. **Compound Ventilated Fab-**

ric. A. A. Glidden, Watertown, and V. H. Bodle, Newton, assignors to Hood Rubber Co., Inc., Watertown, all in Mass.

1,949,465. **Rubber Bands.** J. R. Gammeter, Akron, O., assignor to Revere Rubber Co., Providence, R. I.

1,949,506. **Rubber Thread.** R. Weston, Cuyahoga Falls, O., assignor, by mesne assignments, to Revere Rubber Co., Providence, R. I.

1,949,650. **Concrete Conduit.** H. E. Lindas, Wichita, Kan.

1,949,823. **Molding a Valve on Center Pins.** L. C. Broecker, assignor to Bridgeport Brass Co., both of Bridgeport, Conn.

1,950,196. **Decorated Sheet Material.** F. Slusher, Akron, O., assignor to B. F. Goodrich Co., New York, N. Y.

1,950,208. **Cleaning Molds.** J. F. Anderson, W. J. Strong, and M. F. Torrence, all of Cuyahoga Falls, O., assignors to B. F. Goodrich Co., New York, N. Y.

1,950,258. **Sole Cement Receptive Backing.** A. L. Murray, Auburn, Ind.

Dominion of Canada

339,754. **Printing Plate.** T. C. Browne, Hinsdale, Ill., U. S. A.

340,035. **Latex-Coated Knitted Article.** Copeman Laboratories Co., assignee of L. G. Copeman, both of Flint, Mich., U. S. A.

340,039. **Fibrous Material.** Dominion Rubber Co., Ltd., Montreal, P. Q., assignee of M. C. Teague, Jackson Heights, and N. H. Brewster, Brooklyn, co-inventors, both in N. Y., U. S. A.

340,040. **Crinkling Sheet Rubber.** Dominion Rubber Co., Ltd., Montreal, P. Q., assignee of J. J. Galligan and W. J. Robinson, co-inventors, both of Providence, R. I., U. S. A.

United Kingdom

400,908. **Football.** Michelin & Cie., Puy-de-Dome, France.

402,067. **Cellular Rubber or Ebonite.** U. Pestalozza and Soc. Italiana Pirelli, both of Milan, Italy.

402,140. **Rubber Thread.** International Latex Processes, Ltd., St. Peter's Port, Channel Islands, assignee of W. A. Gibbons, Montclair, N. J., U. S. A.

402,398. **Beach Ball.** F. Suttle, Cambridge.

402,736. **Golf Ball.** H. K. B. Davis, New York, and J. N. Macy, Ossining, both in N. Y., U. S. A.

CHEMICAL

United States

1,947,458. **Antiager.** W. S. Calcott and W. A. Douglass, both of Penns Grove, N. J., assignors to E. I. du Pont de Nemours & Co., Wilmington, Del.

1,948,292. **Golf Ball Cover.** W. C. Geer, Ithaca, N. Y.

1,948,317. **Accelerator.** L. B. Sebrell and A. M. Clifford, both of Akron, O., assignors to Wingfoot Corp., Wilmington, Del.

1,948,330. **Accelerator.** W. C. Calvert, Akron, O., assignor to Wingfoot Corp., Wilmington, Del.

1,948,422. **Composition for Wood.** S. Krishna, Dehra Dun, United Provinces, British India.

1,948,582. **Antioxidant.** J. K. Hunt and G. H. Latham, assignors to E. I. du Pont de Nemours & Co., all of Wilmington, Del.

1,949,240. **Antiager.** H. M. Bunbury and W. J. S. Naunton, both of Prestwich, and K. W. Palmer, Huddersfield, all in England, assignors to Imperial Chemical Industries, Ltd., a corporation of Great Britain.

1,950,067. **Accelerator.** R. L. Sibley, Nitro, W. Va., assignor to Rubber Service Laboratories Co., Akron, O.

1,950,079. **Accelerator.** A. W. Campbell, Stow, O., assignor to B. F. Goodrich Co., New York, N. Y.

1,950,451, 1,950,452, and 1,950,453. **Aqueous Rubber Dispersion.** H. L. Levin, Nutley, N. J., assignor, by mesne assignments, to Patent & Licensing Corp., New York, N. Y.

1,950,478. **Antiager.** W. S. Calcott and W. A. Douglass, both of Penns Grove, N. J., assignors to E. I. du Pont de Nemours & Co., Wilmington, Del.

1,950,744. **Latex Plastic.** J. C. Patrick, Kansas City, Mo.

1,950,820. **Chlorinated Rubber Varnish.** A. Schmidt, Stade in Hannover, and M. Deseniss, Hamburg, assignors, by mesne assignments, to Deutsche Tornesit-Gesellschaft m.b.H., Hamburg, all in Germany.

1,950,894. **Chlorinated Rubber Composition.** W. Koch, assignor to Hercules Powder Co., both of Wilmington, Del.

1,951,052. **Accelerator.** M. W. Harman, Nitro, W. Va., assignor to Rubber Service Laboratories Co., Akron, O.

Dominion of Canada

339,496. **Organic Fiber Preparation.** Dewey & Almy Chemical Co., N. Cambridge, assignee of G. R. Tucker, N. Andover, and L. W. Isom, Belmont, co-inventors, all in Mass., U. S. A.

339,497. **Rubber - Bonded Asbestos.** Dewey & Almy Chemical Co., N. Cambridge, assignee of G. R. Tucker, N. Andover, both in Mass., U. S. A.

339,499. **Rubber Composition.** Dunlop Rubber Co., Ltd., London, assignee of D. F. Twiss and F. A. Jones, co-inventors, both of Birmingham, all in England.

339,552. **Rubber - Bonded Asbestos.** Dewey & Almy Chemical Co., N. Cambridge, assignee of G. R. Tucker, N. Andover, both in Mass., U. S. A.

339,905 and 339,906. **Photographic Film.** J. L. Howell, executor of the estate of A. G. Adamson, deceased, and W. M. Still & Sons, Ltd., assignee of ½ of the interest, all of London, England.

340,261. **Transparent Rubber Film.** Goodyear Tire & Rubber Co., Akron, assignee of W. C. Calvert, Cuyahoga Falls, both in O., U. S. A.

United Kingdom

401,401. **Flame-Proof Cable.** J. H. Young, Mt. Lebanon, and H. H. Robertson Co., Pittsburgh, both in Pa., U. S. A.

401,500 **Electric Insulation Composition.** International General Electric Co., Inc., New York, N. Y., U. S. A., assignee of Allgemeine Elektricitäts-Ges., Berlin, Germany.

402,295. **Wetting Agent.** H. T. Bohme A. G., Chemnitz, Germany.

402,422. **Waterproofing Composition.** A. G. Rodwell, London.

402,865. **Latex Composition.** A. M. Dunstone, Sydney, Australia.

402,920. **Rubber Colors.** J. Y. Johnson, London. (I. G. Farbenindustrie A. G., Frankfurt a. M., Germany.)

403,121. **Latex for Textiles.** Naugatuck Chemical Co., Naugatuck, Conn., assignee of M. C. Teague, Jackson Heights, and N. C. Brewster, Brooklyn, both in N. Y., all in the U. S. A.

GENERAL

United States

1,947,474. **Flexible Band Track.** H. A. Knox, Davenport, Iowa.

1,947,489. **Engine Mounting.** W. B. Nold, Chicago, Ill.

1,947,501. **Machine Base.** W. E. Sharp, Chicago, Ill.

1,947,532. **Tank Lining.** A. B. Merrill, Akron, O., assignor to B. F. Goodrich Co., New York, N. Y.

1,947,571. **Ice Cream Cabinet.** E. S. Prince, Sterling, Ill.

1,947,678. **Pneumatic Tube Deflater.** W. V. Smith, S. Hadley Falls, assignor to Fisk Rubber Co., Chicopee Falls, both in Mass.

1,947,760. **Tire Deflation Indicator.** G. E. Denhart, Pittsburgh, Pa.

1,947,788. **Sound Absorbing Panel.** B. D. McIntyre, assignor to Insulation Development Corp., both of Monroe, Mich.

1,947,803. **Windshield Wiper.** E. F. Sandman, Willoughby, O.

1,947,824. **Running Board.** B. Bronson, assignor to Ohio Rubber Co., both of Cleveland, O.

1,947,845. **Revolving Door Brake.** J. H. Graham, Pittsburgh, Pa.

1,947,936. **Central Buffing and Draft Gear.** R. T. Glascodine, London, England.

1,948,041. **Bottle Case.** D. A. McCowan, Toronto, Ont., Canada.

1,948,076. **Breast Supporter.** B. Notes, Washington, D. C.

1,948,136. **Dual Tire Wheel.** G. F. Scheckler, assignor of ½ to R. C. Zuckerman, both of Stockton, Calif.

1,948,167. **Vibrating Device.** L. B. Cornwell, New York, N. Y.

1,948,193. **Sewing Machine Mounting.** C. S. Thompson, Elmhurst, assignor to Union Special Machine Co., Chicago, both in Ill.

1,948,211. **Flexible Sealing Coupling.** H. E. Fritz, Akron, O., assignor to B. F. Goodrich Co., New York, N. Y.

1,948,247. **Vibration Damper.** C. E. Summers, Pontiac, assignor to General Motors Corp., Detroit, both in Mich.

1,948,249. **Electrical Connecter.** H. B. White, Canton, assignor to Hoover Co., N. Canton, both in O.

1,948,304. **Elastic Wheel.** E. F. Maas, Cuyahoga Falls, O., assignor to Wingfoot Corp., Wilmington, Del.

1,948,327. **Mat.** J. D. Berwick, Akron, O., assignor to Wingfoot Corp., Wilmington, Del.

1,948,332. **Conveyer Belt.** R. S. Carter, Akron, O., assignor to Wingfoot Corp., Wilmington, Del.

1,948,335. **Surface Marker.** L. E. Clough, assignor to General Tire & Rubber Co., both of Akron, O.

1,948,390. **Shoe Sole.** C. P. Mebane, assignor to National Glove Co., both of Columbus, O.

1,948,398. **Magazine Shaving Brush.** J. Rose, Stockbridge, Mass.
1,948,410. **Hose.** F. B. Williamson, Jr., Elizabeth, assignor to Whitehead Bros. Rubber Co., Trenton, both in N. J.
1,948,444. **Garment Supporting Band.** A. J. Krein, Baltimore, Md.
1,948,476. **Shock and Vibration Insulator.** C. Saurer, assignor to Firestone Tire & Rubber Co., both of Akron, O.
1,948,630. **Packing.** J. Restein, assignor, by mesne assignments, to Belmont Packing & Rubber Co., both of Philadelphia, Pa.
1,948,755. **Telephone Booth.** O. Gullicksen, assignor to Churchill Cabinet Co., both of Chicago, Ill.
1,948,762. **Valve Stem.** W. J. Kirkpatrick, Garden City, assignor to A. Schrader's Son, Inc., New York, both in N. Y.
1,948,807. **Bath Spray.** E. Taylor, Garden City, N. Y.
1,948,810. **Attaching Cylinder Blocks to Crank Cases.** J. M. Tyler, assignor to General Motors Research Corp., both of Detroit, Mich.
1,948,826. **Mat.** C. J. Peterson, Chicago, Ill.
1,948,844. **Elastic Braid.** R. T. Dawes, Hudson, Mass.
1,948,868. **Flexible Coupling.** F. W. Peters, Cleveland, O.
1,948,942. **Door Strip.** W. H. Ross, Ramsey, assignor to Raybestos-Manhattan, Inc., Passaic, both in N. J.
1,948,982. **Hypodermic Syringe.** R. K. Cutter, assignor to Cutter Laboratory, both of Berkeley, Calif.
1,949,035. **Hospital Bed.** L. Beurschgens, assignor, by mesne assignments, to Naamlooze Vennootschap "Morpheus," both of Leyden, Netherlands.
1,949,055. **Flexible Coupling.** J. A. Lambie, assignor of ½ to West Coast Pipe & Steel Co., both of Los Angeles, and ½ to Rain Machine, Ltd., Lompoc, all in Calif.
1,949,058. **Dispensing Bottle Stopper.** C. W. Leguillon, Akron, O., assignor to B. F. Goodrich Co., New York, N. Y.
1,949,063. **Artificial Turf.** A. B. Merrill, Akron, O., assignor to B. F. Goodrich Co., New York, N. Y.
1,949,068. **Artificial Turf.** M. Achterhof, Akron, O., assignor to B. F. Goodrich Co., New York, N. Y.
1,949,271. **Surgical Bandage.** D. J. Duhamel, Milford, assignor to Bay Co., Bridgeport, both in Conn.
1,949,293. **Pressure Gage.** J. C. Crowley, Cleveland Heights, assignor to Dill Mfg. Co., Cleveland, both in O.
1,949,312. **Garment.** H. D. Konski, New York, N. Y.
1,949,334. **Spray Head.** C. A. Schacht, Huntington, Ind.
1,949,393. **Doll Joint.** M. S. Lower, Wadsworth, assignor to Sun Rubber Co., Barberton, both in O.
1,949,423. **Track-Laying Vehicle Track.** H. A. Knox, Davenport, Iowa, and T. H. Nixon, United States Army, Gettysburg, Pa.
1,949,520. **Vibration Damper.** R. H. Whisler, Halfway, assignor to Hudson Motor Car Co., Detroit, both in Mich.
1,949,567. **Ash - Tray Match - Box Holder.** H. R. Goddard, Santa Monica, Calif.
1,949,595. **Aviation Goggles.** F. Willson, near Reading, and H. F. Shindel, Reading, assignors to Willson Products, Inc., Reading, all in Pa.
1,949,695. **Wheel, Rim, and Tire.** A. H. Shoemaker, Seattle, Wash.
1,949,712. **Tire Pressure Indicator.** J. L. Giesser, Sacramento, Calif.
1,949,754. **Bottle Opener.** T. V. Messer, E. Cleveland, assignor of ½ to E. E. Noyes, S. Euclid, both in O.
1,949,775. **Fluid Composition.** J. Bebie and G. L. Doelling, assignors to Wagner Electric Corp., all of St. Louis, Mo.
1,949,820. **Window Scaffold.** N. Timmons, Chicago, Ill.
1,949,867. **Doll.** A. M. Katz, assignor to Ideal Novelty & Toy Co., both of Brooklyn, N. Y.
1,949,874. **Pump Valve.** J. L. Paterson and A. B. Edwards, both of Ventura, Calif.
1,949,902. **Bottle Closure.** M. S. Desser, Toledo, O., assignor to Owens-Illinois Glass Co., a corporation of O.
1,950,048. **Non-skid Tire Cover.** J. J. Dineen, Lawrence, Mass.
1,950,064. **Hose Suspender Grip Fastener.** P. Pugniet, Paris, France.
1,950,081. **Bathing Cap.** W. W. De Laney, assignor to Seamless Rubber Co., Inc., both of New Haven, Conn.
1,950,126. **Cable Conductor Winding.** R. T. Staples, Westfield, N. J., assignor to Bell Telephone Laboratories, Inc., New York, N. Y.
1,950,176. **Window Lock.** L. N. Hoffman, assignor to Shelby Metal Products Co., both of Shelby, O.
1,950,318. **Lather Applier.** L. M. McNab, Killara, N. S. W., Australia.
1,950,325, 1,950,326, and 1,950,327. **Valve Closed Metal Container.** W. F. Punte, Syracuse, assignor to Continental Can Co., Inc., New York, both in N. Y.
1,950,342. **Golf Club Shaft.** I. H. Meshel, New York, N. Y.
1,950,417. **Flexible Article Wrinkle Finish.** F. B. Root, E. Orange, N. J., assignor to Chadeloid Chemical Co., New York, N. Y.
1,950,490. **Electric Switch.** C. D. Geer and E. D. Stirlen, assignors to Engineering & Research Corp., all of New Haven, Conn.
1,950,546. **Sole Press.** S. J. Finn, Beverly, Mass., assignor to United Shoe Machinery Corp., Paterson, N. J.
1,950,559. **Elastic Woven Fabric.** S. Kendrick, assignor to United Elastic Corp., both of Easthampton, Mass.
1,950,571. **Self-Inflating Pillow.** B. C. Rubin, New York, N. Y.
1,950,588. **Windshield Wiper.** J. W. Anderson, Gary, Ind.
1,950,637. **Engine Mounting.** A. Taub, assignor to General Motors Corp., both of Detroit, Mich.
1,950,702. **Nurser Nipple Fastener.** F. Thomä, Ludenscheid, Germany.
1,950,839. **Nostril Dilator.** D. D. Chirila, South Bend, Ind.
1,950,858. **Rope.** H. G. Metcalf, assignor to Columbian Rope Co., both of Auburn, N. Y.
1,950,886. **Crank Shaft Vibration Dampener.** E. G. Gunn, Racine, Wis., assignor, by mesne assignments, to Packard Motor Car Co., Detroit, Mich.
1,950,887. **Internal Combustion Engine.** T. C. Van Degrift, assignor to Packard Motor Car Co., both of Detroit, Mich.
1,950,888. **Vibration Damper.** M. Tibbetts, assignor to Packard Motor Car Co., both of Detroit, Mich.
1,950,916. **Excavating Machine Mounting.** N. De Wind, assignor to Parsons Co., both of Newton, Iowa.
1,951,020. **Anti-Vibration Support.** H. F. Hoevel, New York, N. Y.
1,951,023. **Clothes Brush.** W. Josselyn, Carmel, Calif.
1,951,041. **Draper Apron.** E. K. Twombly, assignor to Hewitt-Gutta Percha Rubber Corp., both of Buffalo, N. Y.
1,951,113. **Electric Discharge Device.** K. Wiegand, Berlin-Tempelhof, Germany, assignor to General Electric Co., a corporation of N. Y.
1,951,135. **Gunstock Butt Plate.** O. B. Emswiler, Minneapolis, Minn.
1,951,193. **Inflated Toy Rolling Pin.** G. Heighway, New York, N. Y.
1,951,203. **Fingerprint Impression Transferer.** H. E. Pitman, assignor of ½ to S. Silk, both of St. Louis, Mo.
1,951,217. **Vibration Dampener and Isolator.** S. E. Slocum, Ardmore, Pa.
1,951,284. **Heel Protecting Foot Rest.** F. J. Kramer, Lancaster, Pa.
1,951,313. **Sanitary Shaving Brush.** A. E. Peyser, N. Plainfield, N. J., and O. K. Zwingenberger, New York, N. Y.; P. Zwingenberger, administratrix of said O. K. Zwingenberger, deceased.

Dominion of Canada

339,434. **Horseshoe.** A. V. and J. E. Anderson, and J. C. Lee, co-inventors, all of Hamilton, Ont.
339,455. **Trouser Garment Waistband.** M. M. Isaacs, Sydney, N. S. W., Australia.
339,686. **Glass Washer and Drier.** Kleenglas (1929), Ltd., assignee of A. Griffiths, both of London, England.
339,749. **Inflation Valve.** T. Beasley, London, England.
339,852. **Tire Tread.** Goodyear Tire & Rubber Co., assignee of H. A. Brittain, both of Akron, O., U. S. A.
339,886. **Elastic Looped Fabric.** Julius Römpler Aktiengesellschaft, assignee of C. Baumgärtel, both of Zeulenroda, Germany.
339,951. **Tire Liner.** R. C. Lambert, East York, Ont.
339,976 and 339,977. **Spare Tire Cover.** O. U. Zerk, Chicago, Ill., U. S. A.
340,125. **Tire Boot.** W. Chartier, Ste-Marguerite, P. Q.
340,146. **Balloon.** C. T. Turner, Lakefield, Ont.
340,157. **Girdle.** C. E. Pecknold, Vancouver, B. C.
340,162. **Dental Polishing Cup.** H. R. Priest, Loudonville, O., U. S. A.
340,165. **Well Casing Head.** L. M. C. Seamark, Chagford, England.
340,174. **Spare Tire Cover.** O. U. Zerk, Chicago, Ill., U. S. A.
340,247 and 340,248. **Sharp Freezing Container.** Copeman Laboratories Co., assignee of L. G. Copeman, both of Flint, Mich., U. S. A.
340,265. **Knitted Fabric.** Hemphill Co., Central Falls, assignee of R. H. Lawson, Pawtucket, and R. F. Lovell, Providence, co-inventors, all in R. I., U. S. A.

United Kingdom

400,139. **Wire Strainer.** C. E. Harlfy and Ripaults, Ltd., both of London.
400,378. **Gardeners' Tool.** W. A. Grinyer, Worthing.

400,512. **Friction Gearing.** D. G. D. Sloan and J. S. Cowcher, both of Williams, Western Australia.
400,568. **Bathing Costume.** B.V.D. Co., Inc., assignee of L. Just, both of New York, N. Y., U. S. A.
400,757. **Bicycle Tire.** Dunlop Rubber Co., Ltd., London, and W. E. Hardeman, Birmingham.
400,903. **Saddle.** L. O. Illsley, Oakham.
400,992. **Horseshoe.** Phillips Rubber Soles, Ltd., and G. F. Eyles, both of London.
401,105. **Fountain Pen.** B. A. Godek, Paris, France.
401,136. **Vehicle Molding.** F. Chassaing, Alfortville, France.
401,167. **Teat Cup.** Aktiebolaget Separator, Stockholm, Sweden, assignee of C. H. Hapgood, Nutley, N. J., U. S. A.
401,183. **Sunken Submarine Air Supplier.** W. Tinning, Carlisle.
401,212. **Vehicle Side-Splash Guard.** A. J. Babbs and A. V. Knaggs, (trading as A. Vernon & Co.), both of Manchester.
401,315. **Sliding Clasp Fastener.** W. J. S. Naunton, Manchester, and Lightning Fasteners, Ltd., London.
401,320. **Hair Waver.** A. O. Lewis, Glamorgan, Wales.
401,372. **Soap Holder.** E. A. Flavell, Wolverhampton.
401,400. **Toy Airplane.** H. N. Childe, Reading.
401,417. **Fly Swatter.** W. W. Lillard, Midland Park, N. J., U. S. A.
401,435. **Tobacco Pipe Cleaner.** B. Hellmann, Zürich, Switzerland.
401,469. **Portable Lamp Stand.** G. Briggs, London.
401,479. **Tire.** P. Smalzi, Paris, France.
401,516. **Elastic Fabric.** United Elastics, Ltd., Middlesex.
401,521. **Coherent Mass from Powdered Metal.** Wolfram & Molybdaen A. G., Zürich, Switzerland.
401,526. **Tire.** E. W. Moore, Scarborough.
401,552. **Universal Joint.** British Thomson-Houston Co., Ltd., London, assignee of Constructions Electriques de France, Paris, France.
401,558. **Compound Sheet Material.** P. Vierkotter, Berlin, Germany.
401,560. **Cable.** C. H. F. Muller A. G., Hamburg, Germany.
401,578. **Shoe Quarter Lining.** United States Rubber Co., assignee of E. F. Roberts, both of New York, N. Y., U. S. A.
401,582. **Electric Harpoon.** A. Foyn, Oslo, Norway.
401,592. **Ball Thrower and Catcher.** Corballo-Ges. and R. B. Philipp, both of Reutlingen, Germany.
401,616. **Bottle Closure.** A. A. Thornton, London. (F. Gutmann & Co., Brooklyn, N. Y., U. S. A.)
401,647 and 401,648. **Universal Joint.** Budd Wheel Co., assignee of R. H. Rosenberg, both of Philadelphia, Pa., U. S. A.
401,670. **Ice Cream Cooler.** S. D. Ware, London.
401,744. **Vibration Damper.** V. H. Nalinne, Brussels, Belgium.
401,763. **Memorandum Appliance.** P. A. M. Jansen, Hilversum, Holland.
401,800. **Press Roller.** F. Reddaway and J. Muskett, both of Manchester.
401,809. **Motor Mounting.** Lancia & Co. Fabbrica Automobilitorino Soc. Anon., Turin, Italy.
401,833. **Face Wrinkle Remover.** A. M. Low, London.
401,840. **Tire Pressure Gage.** B. Walters, Sheffield.
401,844. **Hair Waver.** W. Fletcher, London, and A. O. Lewis, Glamorgan, Wales.
401,861. **Sink Draining Basket.** F. J. Burton, Oxtead.
401,907. **Elastic Fabric.** United Elastics, Ltd., Middlesex.
401,924. **Electric Switch.** H. Rosenberg, Berlin, Germany.
401,955. **Game Practicing Appliance.** H. C. Deane and J. H. Naden, both of London.
401,959. **Flocked Fabric.** United States Rubber Co., assignee of P. Adamson, both of New York, N. Y., U. S. A.
401,970. **Lathe Machine.** H. Kuppel and L. Simeant, Clichy, France.
401,989. **Electrolytic Condenser.** Magnavox (Great Britain), Ltd., London, assignee of J. J. Barrett, Fort Wayne, Ind., U. S. A.
401,999. **Fruit Receptacle Cover.** C. E. Brett, and M., C. G., and K. M. Burall, (trading as Burall Bros.), all of Wisbech.
402,020. **Vehicle Undercarriage.** W. P. Kellett, Fieldston, N. Y., U. S. A.
402,040. **Reservoir Shaving Brush.** H. Depasse, Neuilly-sur-Seine, France.
402,082. **Color Photography.** A. Boettger and M. Kronschnabl, both of Munich, Germany.
402,087. **Fabric Shrinker.** J. H. Wrigley, Worthington, A. Melville, Standish, and A. B. Henshilwood, Thornbury.
402,088. **Medical Heater or Cooler.** C. R. Elliott, New York, N. Y., U. S. A.
402,176. **Printers' Blanket.** G. Greaves, Stalybridge, and T. Farrand, Mossley.
402,210. **Accumulator.** Chloride Electrical Storage Co., Ltd., and H. Dean, both of Clifton Junction.
402,220. **Dough Divider.** Schmidt Securities Co., Chicago, Ill., U. S. A.
402,238. **Brush.** C. Chick, Derbyshire.
402,251. **Sieve Vibrator.** F. Krupp Grusonwerk A. G., Buckau, Germany.
402,263. **Telephone Mouthpiece Disinfector.** J. W. Cumming, Purley, Surrey.
402,268. **Collapsible Bobbin.** A. Bazzocchi, Milan, Italy.
402,269. **Carpet.** S. Blumenthal & Co., Inc., New York, N. Y., assignee of J. C. Emhardt, New Haven, Conn., both in the U. S. A.
402,277. **Cable.** Liverpool Electric Cable Co., Ltd., and W. J. Terry, both of Liverpool.
402,319. **Fountain Pen.** J. M. Wallace, Cedarhurst, L. I., N. Y., U. S. A.
402,336. **Filter.** T. Landi, Paris, France.
402,359. **Calendar.** W. M. Colbridge, Doncaster.
402,404. **Brush.** C. Ouzman, London.
402,416. **Sliding Clasp Fastener.** J. Waldes, H. Puc, E. Merzinger, and Z. Waldes, (trading as Waldes A Spol), all of Prague, Czechoslovakia.
402,417. **Ticket Printer and Issuer.** R. H. Suckling, London.
402,444. **Telephone Mouthpiece.** W. L. Colassi, London.
402,480. **Vacuum-Sealed Canister.** E. Gore-Lloyd, Shepperton-on-Thames.
402,501. **Suction Cylinder.** R. Richardson, Overton.
402,560. **Cycle Handle-Bar Reflector.** A. J. Ulbrich, Oldbury.
402,566. **Horseshoe.** D. P. Mahoney, New Brighton, New Zealand.
402,575. **Weighing Scale.** J. F. Southerton, Birmingham.
402,623. **Bottle Closure.** W. J. Tennant, London. (Crown Cork & Seal Co., Inc., Baltimore, Md., U. S. A.)
402,634. **Inflated Ball.** W. Sykes, Ltd., Horbury, and W. J. Wycherley, Ossett.
402,638. **Inflating Valve.** W. Sykes, Ltd., Horbury, and W. J. Wycherley, Ossett.
402,654. **Mop.** J. C. Robertson, Voorburg, Holland.
402,663. **Teat Cup.** Aktiebolaget Manus and C. E. Ellison, both of Norrköping, Sweden.
402,665. **Discharge Lamp.** General Electric Co., Ltd., London, assignee of Patent-Treuhand-Ges. fur Elektrische Gluhlampen, Berlin, Germany.
402,806. **Exercising Hoop.** F. Girard and M. Gottburg, Hanau a.M., Germany.
402,807. **Film Coating Machine.** C. W. Bonniksen and Protectoglass, Ltd., both of Slough.
402,820. **License Holder.** E. W. Puckert, West Croydon.
402,839. **Sleeve Coupling.** J. Lucas, Ltd., and W. H. Egginton, both of Birmingham.

TRADE MARKS

United States

309,767. **Master - Pak.** Prophylactic rubber articles. W. H. Reed, doing business as W. H. Reed & Co., Atlanta, Ga.
309,768. **Bifbat.** Game comprising a ball and a bat interconnected by an elastic thread. Louis Marx & Co., New York, N. Y.
309,775. Purple band coextensive with and extending full length along both lateral edges of the goods. Power transmission belts. Republic Rubber Co., Youngstown, O.
309,819. **Stik-Kwik.** Metallic or liquid solder. Rainbow Rubber Co., E. Butler, Pa.
309,820. **Stik-Kwik.** Adhesive rubber cement and china cement. Rainbow Rubber Co., E. Butler, Pa.
309,825. **Cold-N-Chest.** Wool flannel body protectors. Youngs Rubber Corp., Inc., New York, N. Y.
309,829. **"Fabricap."** Bathing caps. United States Rubber Co., New York, N. Y.
310,040. **KantKut.** Hose supporter buttons. United Elastic Corp., Easthampton, Mass.
310,044. **Gabriel Rubber Inlay Welder.** Vulcanizers. Gabriel Pneumatic Vulcanizer, Inc., Cleveland, O.
310,094. Diamond-shaped label containing the words: **"Grant A One."** Tube repair kits and patches. W. T. Grant Co., New York, N. Y.
310,139. **Latextile.** Elastic threads. William Warne & Co., Ltd., Barking, England.
310,205. Representation of a winged foot between the words: **"Good Year."** Storage batteries and spark plugs. Goodyear Tire & Rubber Co., Akron, O.
310,214. **Curlicord.** Insulated electric conductor cords. United Elastic Corp., Easthampton, Mass.
310,267. Representation of a winged foot between the words: **"Good Year."** Electrical conduit. Goodyear Tire & Rubber Co., Akron, O.

Market Reviews

CRUDE RUBBER

GAINS of about 1¢ a pound were scored by rubber in the first 3 weeks of April because of the imminence of agreement on restriction. It is believed that the Dutch have submitted the following proposals to the British: Holland is ready to order individual restriction on European plantations by proclaiming a decree prohibiting exports except by certificates to be handled individually at plantations; and the Dutch Indian Government is ready to levy an export tax on native rubber.

The automobile industry supplied most of the other news. A general strike was avoided by the President, and a 40-day truce was declared after his intervention, among tire manufacturers and dealers who threatened another tire price war.

Output of cars has been at a high rate, but sales are not up to expectations because of slow deliveries, and shortage of credit facilities.

In the Outside Market business has been maintained at a fairly high rate. The smaller manufacturer has been in the market in anticipation of final agreement on restriction and higher prices. The high consumption rate and the decrease in stocks is encouraging.

Week ended March 31. With holidays in this market and in Singapore and London, activity dropped sharply with prices, on the whole, firm. Changes were negligible: 2 points down to 3 points up.

The settlement of the automobile strike on Monday through the President's intervention had a steadying influence. If it had not been for the actions of Congress, prices might have been better. But when House and Senate overrode the President's veto of the bonus bill, all markets were affected adversely.

At the close April was 11.03¢, compared with 11.05¢ the week before; May 11.11 unchanged; July 11.43 against 11.40; September 11.70 unchanged; October 11.82 unchanged; and December 12.03 against 12.02.

Regulation of the Commodity Exchange was another possibility under legislation said to have been introduced into the Senate. Much selling was induced on this account, but it was offset by buyers for foreign accounts. In London the Dutch East Indies figures indicating that 14.9% of the rubber area was untapped were said to show a shortage of labor facilities; but, on the other hand, a large potential output exists if control is not effected. No restriction news was forthcoming during the week.

Automobile output last week was 81,896 units, against 79,673 in the preceding week, and 25,796 in the same 1933 week. The rise was larger than seasonal and probably due to the rush to push production before the expected strike. Retail sales are improving well, and dealers in some sections are having difficulty in filling orders. The only snag to further sales appears to be lack of cash; the demand for credit is quite large at present.

Business in the Outside Market was quiet prior to the Easter holiday, but prices advanced. Ribbed smoked sheets for the nearby positions closed at 11⅛¢, compared with 11¢ last Saturday; April-June 11¼ against 11⅛; July-September 11¾ against 11½; and October-December 12⅛ against 11⅞.

Week ended April 7. After the holidays the market reopened from 21 to 25 points higher. The London market, closed on Monday, responded to our advance by minor gains, but a favorable technical position here and a rise in the price of sterling helped prices keep the advance.

At the close prices were from 23 to 29 points up. May was 11.40¢ against 11.11¢; July 11.66 against 11.43; September 11.95 against 11.70; October 12.07 against 11.82; December 12.31 against 12.03; and January 12.40 against 12.14.

March Malaya shipments were 58,515 tons, against 57,963 in February, 55,276 in January, and 42,059 in March, 1933. The figures are high, but the market absorbed them without reaction. The present high rate of consumption, which may attain record proportions in 1934, has helped to offset the large production rate.

In commenting on the consumption rate, Henry Gardner & Co., London factor, said: ". . . How far can the cost of the raw material be raised without stemming this rising tide of new consumption? It is, perhaps, not so much a question of price as the elimination of wild fluctuations from the manufacturing point of view.

"Consumption therefore may reach record figures during 1934, with every chance of absorbing much of the surplus stock. It was clearly well on its way to doing this until the resumption of restriction conferences caused speculative purchases, and a rise in price to 5d. The immediate effect has been to afford the opportunity for a wider circle of producers to come into action again."

Chrysler and General Motors raised the prices of their cars. Other manufacturers followed later, giving as their reason higher wages, increased cost of steel, and shorter working hours. Henry Ford, refusing to follow this lead, said if steel and accessories became too high, he would make his own.

Business in the Outside Market was in fairly good volume all week with prices firm. Latex established an advantage of 2¢ over ambers and browns, and at the end of the week factories made inquiries and bought in fair quantities.

April ribbed smoked sheets closed at 11½¢ against 11⅛¢; May-June 11⅝ against 11¼; July-September 11⅞ against 11¾; and October-December 12¼ against 12⅛.

Week ended April 14. The highest level in rubber prices since July, 1930, was reached this week as the March contract reached 13.26¢ on Thursday, when the volume of sales increased to 10,270 long tons. The reason for the advance was the belief that restriction had virtually been agreed upon and that an announcement would be made shortly. Strength in the stock and grain markets and the prospect of inflationary silver legislation helped increase prices.

At the close prices were from 52 to 67 points up from last week. May was 12.07¢ against 11.40¢; July 12.35 against 11.66; September 12.61 against 11.95; October 12.72 against 12.07; December 12.94 against 12.31; and January 13.05 against 12.40.

The London market was buoyant under reports that restriction had been settled and that the proposal was to be submitted to the British cabinet. It was expected that a communique would be issued over the week-end. From the Dutch East Indies came cables saying it was all up to the British, although the view was taken that this stand was simply to fortify their position in commercial agreements between British and Dutch.

The parts strike that started last week in the Hudson plant apparently was settled, but a new one broke out, with workers demanding a 20% increase in pay with shorter working hours. Until the threat of strike is removed, automobile manufacturers are hesitant about making future commitments in the rubber market.

Automobile production last week was the highest since July, 1930. Output was 89,722 units, against 79,913 in the preceding week and 37,639 in the same 1933 week. The low-priced manufacturers made the sharpest gain, with Chevrolet leading with 30,900 units,

Ford at 19,250, and Plymouth at a new high for it of 11,580 units. Observers see, too, a price war for supremacy in the low-priced field. Complaints still come from the retail field where sales are improving although credit shortage and lack of code enforcement are retarding sales.

The March consumption report is awaited with interest since large takings are expected. Last week local buyers took little rubber, but interest from London made up for it. Arbitrage business was high with a British house doing most of the buying.

In the Outside Market business was only fair. The labor unrest in the automobile and the tire fields disrupted buying plans, but even so, prices hit a high for the last 5 years. The course of the silver bills in Congress was watched too since they are of an inflationary character. When the President returns from his vacation, however, it is thought he will strongly oppose the bills. The imminent agreement on restriction was the most important factor during the week, and dealers are prepared for a good volume of business when the long negotiations are finally concluded.

At the close ribbed smoked sheets were 12 1/16¢ for nearbys, against 11 1/2¢ last week; May-June 12 7/16 against 11 5/8; July-September 12 7/16 against 11 7/8; October-December 12 13/16 against 12 1/4; and January-March 13 7/16 against 12 5/8.

Week ended April 21. Despite the reaction in silver prices and the lack of final restriction news the rubber market gave a good account of itself, ending the week with spot rubber at the highest level since July, 1930. On Friday gains were 28 to 35 points on a turnover of 8,890 tons, and on Saturday gains were 9 to 14 points. For the week prices showed gains of 29 to 32 points. A sharp decline in stocks and grains early in the week adversely affected rubber, but a good consumption report and strong London prices enabled the rubber market to advance in the face of declines on other exchanges.

At the close May was 12.39¢, compared with 12.07¢ last Saturday; July 12.64 against 12.35; September 12.90 against 12.61; October 13.02 against 12.72; December 13.25 against 12.94; and March 13.57 against 13.25.

Consumption in March was 47,614 tons, against imports of 44,605 tons. In March, 1933, consumption was only 18,047 tons. In February, 1934, it was 40,609 tons; in January, 40,413 tons. Imports a year ago were 27,879 tons; in February, 1934, 31,032 tons; in January, 46,204 tons. Stocks on hand dropped to 351,064 tons, from 357,094 on February 28. Stocks afloat were 54,722 tons, against 53,063 a month earlier.

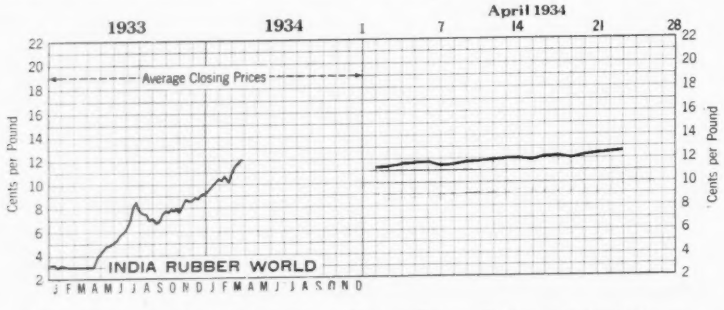
The statement of William de Krafft, chairman of the finance committee of the United States Rubber Co., that his company did not approve British and the Dutch restriction because it would cut production on the company's own plantations about 35% had no appreciable effect on the market.

Automobile output was stepped up again last week to 91,224 units, against 89,722 the week before, and 45,892 in the same 1933 week. Sales were hit somewhat by price increases, but the principal difficulty still is a shortage in deliveries. Most of the gains last week were by medium-priced manufacturers.

Business in the Outside Market was good all week, with buyers awaiting restriction news. April ribbed smoked sheets were 12 7/16¢, compared with 12 1/16 last week; May-June 12 5/16 against 12 3/16; July-September 12 7/8 against 12 9/16; October 13 1/4 against 12 13/16; and January-March 13 5/16 against 13 7/16.

April 23 was quiet, with prices firm and up by about 5 to 10 points. The only news was a private cable from London expressing the belief that restriction would be effective by June 1. The Outside Market was quiet also, with buyers only making inquiries. Prices were up about 1/16¢.

On April 24 rubber again reached new highs since 1930. The sale of crude, however, was disappointing. Spot closed at 12.63¢; June 12.71; September, 13.12; and December 13.49.



New York Outside Market—Spot Closing Prices Ribbed Smoked Sheets

New York Quotations

New York outside market rubber quotations in cents per pound

	Apr. 25, 1933	Mar. 26, 1934	Apr. 25, 1934
Plantations			
Rubber latex...*gal.*	42	50	60
Sheet			
Ribbed, smoked, spot	4 1/16/4 1/4	11 1/8	12 1/2
May-June	4 1/8/4 1/4	..	12 3/8
July-Sept.	4 3/16/4 1/8	11 1/8/11 5/8	12 7/8
Oct.-Dec.	4 1/16/4 3/8	12	13 1/4
Crepe			
No. 1 thin latex, spot	5	12 7/8/13	14 1/2/14 5/8
May-June	5 /5 1/8	.. ..	14 5/8/14 3/4
July-Sept.	5 1/16/5 1/4	13 1/4/13 3/8	14 7/8/15
Oct.-Dec.	5 1/16/5 1/2	13 1/2/13 3/4	15 1/4/15 1/2
No. 3 Amber, spot	3 1/2/3 1/16	9 1/4/ 9 3/8	10 1/4/10 3/8
No. 1 Brown	3 1/16	9 3/8/ 9 1/2	10 3/8/10 1/2
Brown, rolled	3 1/16/3 1/4	7 3/8/ 7 5/8	7 3/4/ 8
Paras			
Upriver fine	7 1/2	10 1/4	10 1/2
Upriver fine	*10 1/4	*13	*13 1/4
Upriver coarse	..	6	7
Upriver coarse	*6	*10 1/4	*10 1/4
Islands fine	7	9 1/2	10
Islands fine	*10	*13	*13 1/4
Acre, Bolivian fine	7 1/2	10 1/4	10 3/4
Acre, Bolivian fine	*10 1/4	*13 1/4	*13 1/2
Beni, Bolivian	7 3/4	10 1/4	10 1/2
Madeira fine	7 1/2	10	10 1/2
Caucho			
Upper ball	..	6	7
Upper ball	*6	*10 1/4	*10 1/4
Lower ball	..	5	6
Pontianak			
Bandjermasin	4 1/4	7	6
Pressed block	7	12	11
Sarawak	4 1/2	7	6
Manicobas			
Manicoba, 30% guar.	†2 3/4	†9 1/4	†6 1/4
Mangabiera, thin sheet	..	†9 1/4	..
Guayule			
Duro, washed and dried	12	12	..
Ampar	13	13	..
Africans			
Rio Nuñez	9 1/2	12	..
Black Kassai	9 1/2	10	..
Prime Niger flake	16	18	..
Gutta Percha			
Gutta Siak	6 1/2	10 1/2	10 1/2
Gutta Soh	12 1/2	15	15
Red Macassar	1.50	1.50	1.35
Balata			
Block, Ciudad Bolivar	18	42	38
Manaos block	19	42	38
Surinam sheets	29	42	43
Amber	31	48	47

*Washed and dried crepe. Shipments from Brazil. †Nominal.

New York Outside Market—Spot Closing Rubber Prices—Cents per Pound

	March, 1934						April, 1934																
	26	27	28	29	30*	31*	2	3	4	5	6	7	9	10	11	12	13	14	16	17	18	19	20	21
No. 1 Ribbed Smoked Sheet	10 13/16	10 7/8	10 7/8	11	..	..	11 1/4	11 3/8	11 1/2	11 5/8	11 5/8	11 3/8	11 7/8	11 3/4	11 13/16	11 13/16	12	12	11 7/8	12 1/16	12 1/16	12	12 1/4	12 3/8
No. 2 Ribbed Smoked Sheet	..	10 13/16	10 13/16	10 13/16	..	..	11 1/8	11 1/4	11 3/8	11 1/2	11 1/2	11 1/4	11 7/8	11 5/8	11 13/16	11 3/4	11 3/4	11 7/8	11 3/4	11 13/16	11 7/8	11 3/4	12	12 1/8
No. 3 Ribbed Smoked Sheet	..	10 7/8	10 7/8	10 7/8	..	..	10 5/8	10 7/8	11	11 1/8	11 1/8	10 7/8	11 3/8	11 1/4	11 1/2	11 1/2	11 1/2	11 5/8	11 1/2	11 7/8	11 7/8	11 1/2	11 3/8	11 3/4	11 7/8
No. 4 Ribbed Smoked Sheet	..	10 1/2	10 1/2	10 1/2	..	..	10 1/2	10 5/8	10 3/4	10 7/8	10 7/8	10 5/8	10 13/16	11 1/8	11 5/8	11 1/4	11 1/4	11 1/4	11 1/8	11 1/8	11 1/4	11 1/8	11 1/2	11 5/8
No. 1 Thin Latex Crepe	12 3/4	12 3/4	12 3/4	12 7/8	..	..	13 1/8	13 1/4	13 3/8	13 1/2	13 1/2	13 1/4	13 1/2	13 5/8	13 11/16	14	14	14 1/4	14 1/8	14 1/4	14 1/4	14	14 1/2	14 5/8
No. 1 Thick Latex Crepe	12 1/2	12 1/2	12 1/2	12 5/8	..	..	12 7/8	13	13 1/4	13 1/4	13 1/4	13	13 1/4	13 3/4	13 7/8	13 3/4	13 3/4	14	13 7/8	14 1/8	14	13 7/8	14 1/4	14 3/8
No. 1 Brown Crepe	9 1/8	9	9	9 1/8	..	..	9 3/8	9 3/4	9 1/2	9 5/8	9 5/8	9 7/8	9 7/8	9 3/4	9 11/16	9 7/8	9 7/8	10	9 7/8	10	9 7/8	9 7/8	10 1/8	10 1/4
No. 2 Brown Crepe	9	8 7/8	8 7/8	9	..	..	9 1/4	9 1/4	9 3/8	9 1/2	9 1/2	9 3/8	9 7/8	9 5/8	9 11/16	9 3/4	9 3/4	9 7/8	9 3/4	9 7/8	9 3/4	9 3/4	10	10 1/8
No. 2 Amber	9 1/16	9	9	9 1/8	..	..	9 3/8	9 3/8	9 1/2	9 5/8	9 5/8	9 7/8	9 7/8	9 3/4	9 11/16	9 7/8	9 7/8	10	9 7/8	10	9 7/8	9 7/8	10 1/16	10 1/4
No. 3 Amber	9	8 7/8	8 7/8	9	..	..	9 1/4	9 1/4	9 3/8	9 1/2	9 1/2	9 3/8	9 7/8	9 5/8	9 11/16	9 3/4	9 3/4	9 7/8	9 3/4	9 7/8	9 3/4	9 3/4	10	10 1/8
No. 4 Amber	8 1/2	8 3/8	8 3/8	8 1/2	..	..	8 3/4	8 3/4	8 7/8	9	9	8 11/16	8 11/16	9 1/16	9 1/16	9 1/4	9 1/4	9 3/8	9 1/4	9 3/8	9 1/4	9 1/4	9 1/2	9 5/8
Rolled Brown	7 1/8	7	7	7 1/8	..	..	7 1/4	7 1/4	7 3/8	7 3/8	7 3/8	7 3/8	7 1/2	7 1/2	7 1/16	7 3/4	7 3/4	7 7/8	7 3/4	8	7 7/8	7 3/4	7 7/8	8

*Closed.

IMPORTS, CONSUMPTION, AND STOCKS

CONSUMPTION of crude rubber by United States manufacturers for March amounted to 47,614 long tons, against 40,609 long tons for February, an increase of 17.2% over February and 163.8% over March, 1933, according to R. M. A. statistics. Consumption for March, 1933, was 18,047 long tons.

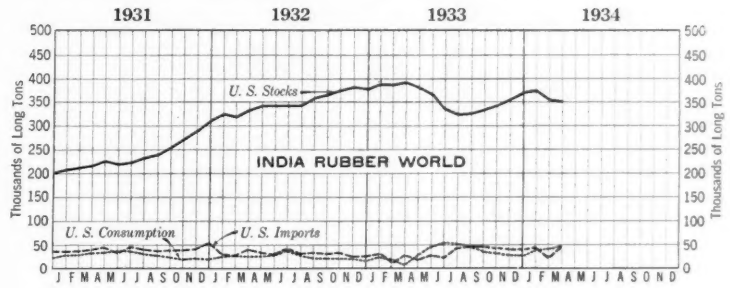
Crude rubber imports for March, 1934, were 44,605 long tons, an increase of 43.7% over February and 60% above March, 1933.

The estimated total domestic stocks of crude rubber on hand March 31 were 351,064 long tons, compared with February 28 stocks of 357,094 long tons. March stocks decreased 1.7% compared with February and 10.1% with March 31, 1933.

Crude rubber afloat for the United States ports on March 31 was 54,722 long tons, compared with 53,063 long tons afloat on February 28 and 29,531 long tons afloat on March 31, 1933.

London and Liverpool Stocks

Week Ended	Tons London	Tons Liverpool
Mar. 31	40,480	54,004
Apr. 7	40,994	54,464
Apr. 14	41,458	53,832
Apr. 21	41,589	54,119



United States Stocks, Imports and Consumption

United States and World Statistics of Rubber Imports, Exports, Consumption, and Stocks

Twelve Months	U. S. Net Imports* Tons	U. S. Consumption Tons	U. S. Stocks on Hand† Tons	U. S. Stocks Afloat† Tons	United Kingdom Stocks†‡ Tons	Singapore and Penang, Etc., Stocks†‡ Tons	World Production (Net Exports)‡ Tons	World Consumption Estimated‡ Tons	World Stocks†‡§ Tons
1930	**488,343**	**375,980**	**200,998**	**56,035**	**118,297**	**45,179**	**821,815**	**684,993**	**366,034**
1931	**495,163**	**348,986**	**322,825**	**40,455**	**127,103**	**55,458**	**797,441**	**668,660**	**495,724**
1932	**400,787**	**332,000**	**379,000**	**38,360**	**92,567**	**36,802**	**709,840**	**670,250**	**518,187**
1933	**411,615**	**405,687**	**364,541**	**55,606**	**86,438**	**48,744**	**845,291**	**818,370**	**489,029**
1934									
January	**46,204**	**40,413**	**368,660**	**45,768**	**90,272**	**51,427**	**81,487**	**77,200**	**510,359**
February	**31,032**	**40,609**	**357,094**	**53,063**	**92,482**	**52,580**	**88,239**	**82,100**	**502,155**
March	44,605	47,614	351,064	54,722	.....	.....	.....	.....	.....

*Including liquid latex, but not guayule. †Stocks on hand the last of the month or year. ‡W. H. Rickinson & Son's figures. §Stocks at the 3 main centers, U. S. A., U. K., Singapore and Penang.

RECLAIMED RUBBER

THE general increase of rubber goods production is stimulating more activity in the demand for reclaim because of its intrinsic technical value. The NRA code for the reclaiming industry became effective April 16, 1934, and is published in full in this issue on pages 41 to 43.

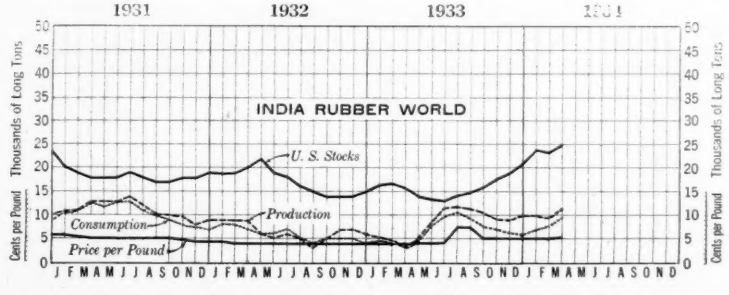
The increase of prices attributable to a rise in cost because of the reclaim code will be much less than that which will appear should governmental restriction of crude rubber production be again decreed.

All prices are firm, nominal, and subject to change. Most grades are quoted unchanged from one month ago. The exceptions follow: high tensile black, auto tire white, shoe unwashed, and mechanical blends. On these grades the increase is uniformly ¼¢ over the quotations of one month ago.

United States Reclaimed Rubber Statistics—Long Tons

Year	Production	Consumption	Consumption Per Cent to Crude	United States Stocks*	Exports
1930	157,967	153,497	41.5	24,008	9,468
1931	132,462	125,001	35.7	19,257	6,971
1932	75,656	77,500	23.3	21,714	3,536
1933	99,974	81,612	20.1	20,746	3,583
1934					
January	9,828	7,000	17.3	24,303	333
February	9,504	7,646	18.8	23,356	282
March	11,479	9,683	20.3	25,113	...

*Stocks on hand the last of the month or year.
Compiled by The Rubber Manufacturers Association, Inc.



Production, Consumption, Stocks, and Price of Tire Reclaim

New York Quotations

April 25, 1934

	Spec. Grav.	Cents per Lb.
High Tensile		
Super-reclaim, black	1.20	8¼/8¾
red	1.20	7 /7¼
Auto Tire		
Black	1.21	5 /5¼
Black selected tires	1.18	5¼/5½
Dark gray	1.35	6¼/6½
White	1.40	8¼/8½
Shoe		
Unwashed	1.60	6½/6¾
Washed	1.50	8 /9
Tube		
No. 1	1.00	12 /
No. 2	1.10	7½/7¾
Truck Tire		
Truck tire, heavy gravity	1.55	5¼/5½
Truck tire, light gravity	1.40	5½/6
Miscellaneous		
Mechanical blends	1.60	4¼/4½

Everlastik, Inc., Chelsea, Mass. Year ended December 31: net income, $75,976, against net loss of $178,040 in 1932.

COMPOUNDING INGREDIENTS

ALL departments of the rubber manufacturing industry are making headway in volume of production. The improvement has not yet been felt by manufacturers of insulated wire because of stagnation in the building industry. Tire and tube production, which accounts for the major part of compounding ingredient demand, is estimated at somewhat better than half capacity.

Business in rubber chemicals is notably brisk. Development of new materials in that division is constantly in progress with ever increasing betterment of rubber compounding. The latest items to be added are Darvan, a new dispersion agent, and Solux, a new and powerful antioxidant for white and light colored stocks, recommended also for prevention of fatigue deterioration or flex cracking equally with the standard discoloring antioxidants.

CARBON BLACK. There is a good steady consumption of carbon black by the rubber industry, particularly for tire tread stocks in which compounding 50%, by volume, on the rubber is not unusual.

FACTICE. Demand for factice moderated the past month. Prices are firm and unchanged.

LITHARGE. The price of the commercial grade has held firm and unchanged at 6¾¢ since October 26, 1933.

LITHOPONE. Demand has improved from fair to good, with prices steady and unchanged.

RUBBER SOLVENTS. Tire manufacturers require rubber solvent in large volume, and with tire production active, consumption of heavy and light grades of solvent is large, and demand continuous.

TITANIUM PIGMENTS. These materials are meeting with popular favor particularly because of their high tinting power and utility in white and light colored goods. Titanium Pigment Co. has reopened its Niagara Falls plant for the production of Titanox B.

ZINC OXIDE. Investment buying featured the demand previous to April 2 when a price advance of ¾¢ became effective. Less active demand followed this increase because of stocks in rubber manufacturers' warehouses.

New York Quotations

April 25, 1934

Prices Not Reported Will Be Supplied on Application

Abrasives		
Pumicestone, pwd.	lb.	$0.02½/$0.04
Rottenstone, domestic	ton	23.50 /28.00
Accelerators, Inorganic		
Lead, white, dry (bbls.)	lb.	.06¼
Lime, hydrated	ton	20.00
Litharge (commercial)	lb.	.06¾
Magnesia, calcined, heavy	lb.	.04 / .04½
carbonate	lb.	.06 / .06¼
Accelerators, Organic		
A-1 (Thiocarbanilid)	lb.	.21 / .25
A-5-10	lb.	.33 / .36
A-7	lb.	.53 / .65
A-11	lb.	.60 / .75
A-16	lb.	.55 / .65
A-19	lb.	.56 / .75
A-32	lb.	.70 / .80
Accelerator 49	lb.	.40 / .53
Acrin	lb.	
Aldehyde ammonia	lb.	.65 / .70
Altax	lb.	
Anhydroformaldehyde-para-toluidine	lb.	
Barak	lb.	
Butene	lb.	
Captax	lb.	
Crylene	lb.	
paste	lb.	
DBA	lb.	
Di-esterex N.	lb.	
DOTG	lb.	.44 / .57
DPG	lb.	.36 / .46
du Pont 808	lb.	
833	lb.	
Ethylidine aniline	lb.	
Formaldehyde aniline	lb.	
Guantal	lb.	.42 / .51
Heptene	lb.	
base	lb.	
Hexamethylenetetramine	lb.	.37
Lead oleate, No. 999	lb.	.10
Witco	lb.	.12
Lithex	lb.	
Monex	lb.	
Novex	lb.	
Pipsol X	lb.	3.55 / 4.00
Plastone	lb.	
R-2	lb.	1.55 / 1.90
base	lb.	4.55 / 5.00
R & H 40	lb.	
50-D	lb.	
Safex	lb.	
Super-sulphur No. 1	lb.	
No. 2	lb.	
Tetrone A	lb.	
Thio	lb.	
Thiocarbanilid	lb.	.20
Thionex	lb.	
Trimene	lb.	
base	lb.	
Triphenyl guanidine	lb.	.58 / .60
Tuads	lb.	
Ureka	lb.	.62 / 1.00
Blend B	lb.	
C	lb.	.58 / .69
Vulcanex	lb.	
Vulcanol	lb.	
Vulcone	lb.	
ZBX	lb.	
Z-88-P	lb.	$0.48 /$0.60
Zimate	lb.	
Acids		
Acetic 28% (bbls.)	100 lbs.	2.91 / 3.16
glacial (carboys)	100 lbs.	14.00
Sulphuric, 66°	ton	15.50
Age Resisters		
Age-Rite Gel	lb.	
powder	lb.	
resin	lb.	
white	lb.	
Albasan	lb.	
Antox	lb.	
BLE	lb.	
Flectol A	lb.	.54 / .60
B	lb.	.54 / .60
H	lb.	
Hiflex B	lb.	
Neozone	lb.	
Oxynone	lb.	.66 / .90
Parazone	lb.	
Permalux	lb.	
Resistox	lb.	.52 / .65
Solux	lb.	
VGB	lb.	
Zalba	lb.	
Alkalies		
Caustic soda, Columbia	100 lbs.	
liquid	100 lbs.	
Antiscorch Materials		
Retarder-W	lb.	
R. H. Cumar	lb.	.075 / .085
UTB	lb.	
Antisun Materials		
Heliozone	lb.	
Sunproof	lb.	
Binders, Fibrous		
Cotton flock, dark	lb.	.10½/ .13
dyed	lb.	.50 / .85
white	lb.	.14 / .20
Rayon flock, colored	lb.	1.60 / 1.75
white	lb.	1.40
Brake Lining Saturants		
B. R. C. No. 553	lb.	.015 / .017
B. R. T. No. 3	lb.	.015 / .017
Colors		
BLACK		
Bone, powdered	lb.	.05½/ .15
Drop	lb.	.05½/ .17
Lampblack (commercial)	lb.	.08 / .12
BLUE		
Brilliant	lb.	
Prussian	lb.	.35½
Toners	lb.	.80 / 3.50
Ultramarine	lb.	.07 / .10
BROWN		
Mapico	lb.	.13
Sienna, Italian, raw, pwd.	lb.	.04¾/ .12½
GREEN		
Brilliant	lb.	
Chrome, light	lb.	.23 / .25½
medium	lb.	.26 / .27½
oxide	lb.	.22 / .23
Dark	lb.	
Guignet's	lb.	$0.70
Light	lb.	
Toners	lb.	.85 /$3.50
ORANGE		
Lake	lb.	
Toners	lb.	.40 / 1.60
ORCHID		
Toners	lb.	1.50 / 2.00
PINK		
Toners	lb.	1.50 / 4.00
PURPLE		
Permanent	lb.	
Toners	lb.	.60 / 2.00
RED		
Antimony		
Crimson, R. M. P. No. 3	lb.	.46
Sulphur free	lb.	.48
7-A	lb.	.33
Z-2	lb.	.20
Chinese	lb.	
Crimson	lb.	
Iron Oxides		
Rub-Er-Red	lb.	.09¼
Mapico	lb.	.09¼
Medium	lb.	
Scarlet	lb.	
Toners	lb.	.80 / 2.00
WHITE		
Lithopone (bags)	lb.	.04½/ .04¾
Albalith	lb.	.04½/ .04¾
Azolith	lb.	.04½/ .04¾
Cryptone No. 19	lb.	.06 / .06¼
CB No. 21	lb.	.06 / .06¼
Rayox	lb.	
Titanox-A	lb.	.17 / .18¾
B	lb.	.06 / .06½
C	lb.	.06 / .06½
Zinc Oxide		
Azo 35 (35% leaded)	lb.	.05¾/ .06
Z (10% leaded)	lb.	.06¾/ .06½
ZZ (3-5% leaded)	lb.	.06¾/ .06½
ZZZ (lead free)	lb.	.06½/ .06¾
Black label (lead free)	lb.	.05¾
Ceramatone	lb.	.06½/ .06¾
F. P. Florence, green seal	lb.	.09⅜/ .09⅝
red seal	lb.	.08⅜/ .08⅝
white seal (bbls.)	lb.	.10⅜
Green label (lead free)	lb.	.05¾
seal, Anaconda	lb.	.09⅜/ .09⅝
Horsehead (lead free) brand		
Selected	lb.	.06½/ .06¾
Special	lb.	.06½/ .06¾
XX	lb.	.06½/ .06¾
red	lb.	.06½/ .06¾
Kadox, black label	lb.	.09⅜/ .09⅝
blue label	lb.	.08⅜/ .08⅝
red label	lb.	.07 / .07¼
Lead free (all grades) Anaconda	lb.	.06½/ .06¾
Leaded, 5%, Anaconda	lb.	.06¼/ .06½
35%, Anaconda	lb.	.05¾/ .06
Lehigh (leaded)	lb.	.05¼/ .06
Red label (lead free)	lb.	.05¾
seal, Anaconda	lb.	.08⅜/ .08⅝
Standard (leaded)	lb.	.06¼/ .06½
U. S. P. (bbls.)	lb.	.12½/ .12¾

White seal, Anaconda	lb.	$0.10⅝
XX zinc sulphide	lb.	.11 /$0.11¾
YELLOW		
Chrome	lb.	.16
Lemon	lb.	
Mapico	lb.	.09½
Ochre, domestic	lb.	.01¾/ .02¼
Toners	lb.	2.50
Dispersing Agents		
Bardex	lb.	.023 / .025
Bardol	lb.	.021 / .023
Darvan	lb.	
Factice—See Rubber Substitutes		
Fillers, Inert		
Asbestine	ton	15.00
Barytes (f.o.b. St. Louis)	ton	23.00
off color	ton	
white	ton	
Blanc fixe, dry precip.	ton	70.00 /75.00
pulp	ton	42.50 /45.00
Calcene	lb.	.0175/ .0215
Infusorial earth	lb.	.03 / .04
Kalite No. 1	ton	
No. 3	ton	
Suprex, white, extra light	ton	60.00 /75.00
heavy	ton	45.00 /60.00
Whiting		
Chalk, precipitated	lb.	
Columbia brand	lb.	
Domestic	ton	
Hakuenka	lb.	
Paris white, English cliff-stone	100 lbs.	
Sussex	ton	
Witco	ton	20.00
Wood flour (f.o.b. New Hampshire)	ton	21.00 /55.00
Fillers for Pliability		
Flex	lb.	
Fumonex	lb.	.03 / .05½
P-33	lb.	
Thermax	lb.	
Velvetex	lb.	.02 / .05
Finishes		
IVCO lacquer, clear	gal.	2.60 / 2.90
colors	gal.	2.70 / 3.35
Mica, amber	lb.	.03½/ .05
Rubber lacquer	gal.	
No. 100	gal.	3.00
Starch, corn, pwd.	100 lbs.	2.81 / 3.01
potato	lb.	.05¼/ .06
Talc, dusting	ton	15.00 /25.00
Pyrax	ton	
Latex Compounding Ingredients		
Accelerator 552	lb.	
Aquarex	lb.	
Aresco	lb.	.28 / .40
Catalpo	ton	
Colloidal color pastes	lb.	
sulphur	lb.	
zinc oxide	lb.	
Disinfectants	lb.	
Dispersaid	lb.	1.50
Dispersed Antox	lb.	
factice compound	lb.	.26
Emo, brown	lb.	.13
white	lb.	.13
Emulsified Heliozone	lb.	
Igepon A	lb.	
Nekal BX (dry)	lb.	
Neozone L	lb.	
Palmol	lb.	.08¾
Tepidone	lb.	
Vulcan colors	lb.	
Mineral Rubber		
B. R. C. No. 20	lb.	.014 / .016
Black Diamond	ton	
Genasco (fact'y)	ton	25.00 /27.00
Gilsonite (fact'y)	ton	37.14 /39.65
Hydrocarbon, granulated	ton	35.00 /37.00
hard	ton	
soft	ton	
Parmr Grade 1	ton	21.00 /26.00
Grade 2	ton	21.00 /26.00
265°	ton	
Mold Lubricants		
Rusco mold paste	lb.	.12 / .30
Sericite	ton	
Soapbark (cut)	lb.	.07½/ .08
Soapstone	ton	15.00 /25.00
Oils		
Castor, blown	lb.	.12¼/ .12¾
Poppyseed	gal.	1.50 / 1.60
Red, distilled (bbls.)	lb.	.06⅞/ .07⅞
Protective Colloid		
Casein, domestic	lb.	.12½/ .13
Reclaiming Oils		
B. R. V.	lb.	.039 / .041
S. R. O.	lb.	.012 / .014
Reenforcers		
Carbon Black		
Aerfloted arrow specification black	lb.	.0535/ .0825
Century (delivered)	lb.	.0445/ .0535
"Certified" Cabot	lb.	
Spheron	lb.	
Disperso (delivered)	lb.	.0445/ .0535
Dixie, c.l., f.o.b. New Orleans, La.; Galveston or Houston, Tex.	lb.	$0.0445
local stock, delivered	lb.	.07 /$0.08¼
Gastex	lb.	.03 / .07
Kosmos, c.l., f.o.b. New Orleans, La.; Galveston or Houston, Tex.	lb.	.0445
local stock, delivered	lb.	.07 / .08¼
Micronex	lb.	.0535/ .0825
Ordinary (compressed or uncompressed)	lb.	.0535/ .0825
Carbonex	lb.	.030 / .0375
S	lb.	.0315/ .040
Clays		
Blue Ridge, dark	ton	
China	ton	
Dixie	ton	
McNamee	ton	
Par	ton	
Perfection	ton	7.50 / 9.00
Standard	ton	
Suprex No. 1, selected	ton	10.00 /24.00
No. 2, standard	ton	8.00
Cumar EX	lb.	.0275/ .0375
Glue, high grade	lb.	.23 / .28
Reodorants		
Amora A	lb.	
B	lb.	
C	lb.	
D	lb.	
Para-Dors	lb.	
Rodo No. 0	lb.	
No. 10	lb.	
Rubber Substitutes or Factice		
Amberex	lb.	.13¾
Black	lb.	.06 / .08
Brown	lb.	.07 / .11
White	lb.	.07½/ .12
Softeners		
B. R. C. No. 555	lb.	.012 / .014
B. R. T. No. 7	lb.	.015 / .017
Burgundy pitch	lb.	.05 / .06
acid free	lb.	
Cryst Alba	lb.	
Cyclne oil	gal.	.15 / .28
Fluxol	ton	
Hardwood pitch, c.l.	ton	23.50 /25.00
Palm oil (Witco)	lb.	.08
Petrolatum, light amber	lb.	.02¾/ .03⅛
Pigmentar (drums)	gal.	.23 / .25
Pigmentaroil (drums)	gal.	.23 / .25
Pine oil, dest. distilled (drums)	gal.	.53 / .56
Pine tar	gal.	.24 / .32
Plastogen	lb.	
Rosin oil, compounded	gal.	.35
Rubtack	lb.	.10
Sperso	lb.	
Tackol	lb.	.085 / .18
Tonox	lb.	
Witco 20	gal.	.15
Softeners for Hard Rubber Compounding		
Resin C-55°	lb.	.0125/ .0145
70°	lb.	.0125/ .0145
85°	lb.	.0125/ .0145
Solvents		
Benzol 90% (drums)	gal.	.24
Bondogen	gal.	
Carbon bisulphide (drums)	lb.	.05½/ .12
tetrachloride	lb.	.05¼/ .06
Rubber (f.o.b. Group 3 refineries)	gal.	.06⅞
Turpentine, wood, dest. distilled (drums)	gal.	.45 / .47
Stabilizers for Cure		
Laurex, ton lots	lb.	
Stearex B	lb.	.08 / .10½
flake	lb.	.07½/ .10
Stearic acid, dbl. pres'd	lb.	.10 / .15
Zinc stearate	lb.	
Tackifier		
B. R. H. No. 2	lb.	.015 / .017
Vulcanizing Ingredients		
Sulphur		
Chloride, drums	lb.	.03½/ .04
Flowers, extrafine refined, U.S.P.	100 lbs.	
Rubber	100 lbs.	1.95 / 2.80
Telloy	lb.	
Vandex	lb.	

(See also Colors—Antimony)

Rims Approved by The Tire & Rim Association, Inc.

Rim Size	3 Mos., 1934 No.	%	3 Mos., 1933 No.	%
1933 Low Pressure				
15x5.00E	.....	...	15,474	0.9
15x5.50E	2,314	0.1	8,101	0.5
16x3.50D	.....	...	65	0.0
16x4.00D	497,504	13.4	99,561	6.0
16x4.25D	257,730	6.9	.....	...
16x4.50D	148,729	4.0	17,091	1.0
16x5.00E	27	0.0	323	0.0
16x5.50E	.....	...	187	0.0
16x6.00E	.....	...	548	0.0
16x4.00E	30,188	0.8	.....	...
16x4.50E	287,940	7.8	2,884	0.2
16x5.00F	96,656	2.6	.....	...
16x5.50F	17,085	0.5	.....	...
Drop Center				
17x3.00D	244,250	6.6	264,337	16.0
17x3.25E	223,163	6.0	214,678	13.0
17x3.62F	863,683	23.3	434,587	26.3
17x4.00F	20,273	0.5	90,659	5.5
17x4.19F	3,903	0.1	10,143	0.6
18x2.15B	5,822	0.2	8,661	0.5
18x3.00D	2,887	0.1	142,668	8.6
18x3.25E	10,522	0.3	45,988	2.8
18x3.62F	.....	...	1,697	0.1
18x4.00F	924	0.0	1,990	0.1
18x4.19F	5,966	0.2	8,765	0.5
19x2.15B	2,097	0.1	.....	...
19x3.00D	19,436	0.5	8,033	0.5
21x3.25E	3,645	0.1	.....	...
Flat Base Balloon				
17x5	1,513	0.0	1,359	0.1
18x3.25E	477	0.0	.....	...
18x4	1,282	0.0	1,257	0.1
18x4½	.....	...	110	0.0
18x5	755	0.0	3,723	0.2
19x2.75D	1,016	0.0	2,327	0.1
19x3.00D	565	0.0	154	0.0
19x4	3,322	0.1	3,747	0.2
19x4½	260	0.0	1,054	0.1
19x5	392	0.0	262	0.0
20x2.75D	5,006	0.1	4,036	0.2
20x3½	652	0.0	602	0.0
20x4	605	0.0	501	0.0
20x4½	745	0.0	236	0.0
20x5	10,398	0.3	303	0.0
20x6	919	0.0	.....	...
21x2.75D	.....	...	448	0.0
21x3½	6,988	0.2	1,566	0.0
21x4	425	0.0	401	0.0
21x4½	.....	...	984	0.1
21x6	358	0.0	97	0.0
Flat Base, High Pressure				
30x3½	1,509	0.0	.....	...
32x4	205	0.0	201	0.0
32x4½	507	0.0	.....	...
34x4½	208	0.0	211	0.0
18" Truck				
18x5	.....	...	284	0.0
18x6	79	0.0	.....	...
18x7	5,522	0.2	1,020	0.1
18x8	393	0.0	147	0.0
20" Truck				
20x5	598,643	16.1	170,109	10.3
20x6	216,180	5.9	44,488	2.7
20x7	53,711	1.4	18,292	1.1
20x8	15,458	0.4	6,930	0.4
20x9/10	1,948	0.1	431	0.0
20x10.50	299	0.0	202	0.0
20x11	129	...	.....	...
22" Truck				
22x7	66	0.0	91	0.0
22x8	3,217	0.1	1,227	0.1
22x9/10	1,305	0.0	105	0.0
24" Truck				
24x5	10	0.0	.....	...
24x6	2,437	0.1	359	0.0
24x7	3,031	0.1	1,698	0.1
24x8	4,080	0.1	2,790	0.2
24x9/10	2,184	0.1	1,305	0.1
24x11	209	0.0	.....	...
Tractor Rims				
24x6.00S	2,641	0.1	.....	...
24x8.00T	4,307	0.1	1,685	0.1
28x8.00T	662	0.0	915	0.1
36x6.00S	2,334	0.1	348	0.0
Clincher M. C.				
24x3	134	...	475	0.0
Clincher Auto				
30x3½	1,303	0.0	933	0.1
Totals	3,703,133	...	1,653,853	...

United States Production

Passenger Cars and Trucks

Year	Cars	Trucks	Total
1933	1,603,239	352,387	1,960,626
1932	1,135,682	237,767	1,373,449
1931	1,970,362	415,330	2,385,692
1930	2,820,242	536,665	3,356,907
1929	4,593,609	761,657	5,355,266
1928	3,826,613	530,771	4,357,384
1927	2,946,601	454,723	3,401,326
1926	3,819,362	481,772	4,301,134
1925	3,768,993	496,837	4,265,830
1924	3,210,005	392,535	3,602,540
1923	3,651,130	382,882	4,034,012
1922	2,302,923	241,253	2,544,176
1921	1,453,000	144,000	1,597,000
1920	1,905,000	322,000	2,227,000
1919	1,658,000	276,000	1,934,000
1918	944,000	227,000	1,171,000
1917	1,746,000	128,000	1,874,000
1916	1,526,000	92,000	1,618,000
1915	896,000	74,000	970,000

W. H. Rickinson & Son.

COTTON AND FABRICS

THE most important development of the last month in cotton was the passage of the Bankhead Bill. For the first time in the history of cotton, compulsory legislation will be used to cure the ills with which the industry is confronted. In its final form even sponsors of the bill expressed doubts as to its effectiveness. Through compromise the final tax imposed was 50% and was to be taken at the time of sale instead of at the time of ginning.

With 10,000,000 bales set as a quota, a reduction of 31% is represented from the output average of the last 5 years. When the voluntary petitions were submitted, promises were received for 38% reduction, or 15,350,000 acres.

When President Roosevelt signed the bill he said: "It aims to prevent a very small minority who have refused to cooperate with their neighbors and government from impairing the effectiveness of the current cotton program which now includes 92% of the cotton acreage." Adding that cotton states have found it impossible to act voluntarily, "a Democratic government has consented" to the use of federal power to bring about the desired results.

Congress advocated 2 silver bills designed to aid our products in foreign markets, notably the Dies bill providing for the purchase of silver at a premium, which would permit our goods to be sold at a discount of over 20%. President Roosevelt is strongly opposed to such legislation, and if enacted, it will probably be only in permissive form.

The crop has had a good start in the South, and reports indicate that much new land will be cultivated. The reason is that the Bankhead Bill taxes only sales of cotton and not cotton ginned. Sales of fertilizer in the 9 principal producing states were 1,946,000 tons from December 1 to April 1, against 1,129,000 last year, and 952,000, 2 years ago. Sales of mules have increased sharply also.

Production of cotton goods rose recently, but sales at present are slowing down, although March consumption was high.

Prices on the Exchange have been soft for the last weeks in April. So many conflicting factors enter the picture that it is hard to see far ahead.

Week ended March 31. The Senate finally passed the Bankhead Bill, but reception of the news was varied. Amendments said to be unenforceable were added to the bill, and the tax was raised from 50 to 75%. Senator Bankhead of Alabama, one of the authors of the bill, said, however, that all these difficulties would be straightened out in conference between House and Senate.

Prices were one to 4 points up. May closed at 12.01¢, compared with 12.00¢ last week; July 12.13 against 12.12; October 12.28 against 12.24; December 12.38 against 12.35; and January 12.43 against 12.40.

Mill manufacturers, after several weeks of sales below production, are reported moving quietly to cut output to conform more nearly to sales.

Week ended April 7. The fate of the Bankhead Bill, to come up in the Senate next week, restricted the market to a narrow range. Foreign sales sent prices down, but a gain in sterling, good business in the textile field, talk of inflationary legislation, and mill purchases steadied them. The planting season is under way, and weather news will soon be a daily feature. March fertilizer sales were reported 890,000 tons, against 536,000 a year ago; for the first 9 months sales were 1,584,000 tons, against 901,408 in the same 1933 period.

Prices were 4 points up to 7 points down at the close. May was 12.05 against 12.01; July 12.14 against 12.13; October 12.28 unchanged; December 12.36 against 12.38; January 12.44 against 12.43; and March 12.49 against 12.56.

In response to questions as to what the Government was going to do with the 2,000,000 bales of actual and futures cotton it had in its possession, Oscar Johnson, manager of the AAA producers' pool said in part: " . . . this cotton will not be dumped on the market, sacrificed or offered in a manner calculated to unduly disturb spot market conditions. . . . We have liquidated our futures without disturbing the market and insure the public of our intention to do likewise with the actual cotton.

" . . . the Secretary of Agriculture acquired and has delivered to the cotton pool, recently established, a total of 1,950,000 bales of actual cotton, which cannot be sold at less than 15¢ per pound basis middling ⅞-inch until after July 31, 1934, after which time it may be sold at the discretion of the pool manager with the approval of the Secretary of Agriculture."

That foreign stocks may more than offset any decrease we may effect here was indicated by statistics showing a crop of 6,087,000 bales of Indian cotton on January 31, against 5,337,000 bales a year ago and an average of 5,784,000 for the 5 years previous to 1934. The area plowed for cotton in Russia was reported to the Department of Agriculture as 1,853,000 acres, compared with 618,000 last year. A spot house expects the foreign crop acreage to increase to 50,000,000 against 25,000,000 in this country.

Forwardings to domestic mills last week were 89,000 bales, against 105,000 in the previous week, and 62,000 a year ago. The recent wage increases have led textile manufacturers to predict an upturn in demand for their products. The Textile Association reported that the domestic per capita consumption of cotton goods last year was 61.16 square yards, against the 12-year average of 61.20 yards.

Week ended April 14. The course of the Bankhead Bill through the conference between House and Senate affected cotton prices adversely, and when the final compromise was known, many traders felt that the bill had been weakened. Excellent planting weather has prevailed all week, which also sent prices off slightly. The agitation for legislation on sterling, regarded as an inflationary measure, steadied prices, as did the rise in grains and the heavy buying by mills. Consumption for March was large, but the figures caused no noticeable change in the trend.

Quotations closed from 11 to 18 points down. May was 11.87¢, compared with 12.05 last week; July 11.97 against 12.14; October 12.10 against 12.28; December 12.23 against 12.36; January 12.28 against 12.44; and March 12.38 against 12.49.

The changes in the Bankhead Bill follow. A tax of 50% was substituted for the one of 75%; the tax was to be deducted from sales instead of at the gin; farmers planting 6 bales or less were removed from the exempt list; the measure is for one year and can be continued only if ⅔ of the farmers agree; penalties of $1,000 and one year's imprisonment were retained; and exemptions for 1½-inch cotton were retained.

March consumption was reported at 543,690 bales of lint by the Census Bureau, compared with 477,890 in February and 495,183 in March, 1933. Exports were 550,104 bales of lint, against 628,457 in February and 487,988 in March, 1933. For the 8 months of the present cotton year exports were 6,098,000 bales, value $331,831,000, against 6,085,000 bales, value $234,715,000, last year.

Sales of textile goods improved last week, and business was much better because of the threat of shorter working hours.

Weather in Texas reached over 100° at several stations and was from 90° to 100° over most of the Belt. Planting has advanced as far as South Carolina, with only a few sections in the Mississippi Valley retarded because of wet soil.

Week ended April 21. Cotton lost ground early in the week with the July position hitting a low of 11½¢, recovered slightly, and ended the session with slight losses. The decline was in sympathy with grain and other speculative markets, heavy selling from the South, and fear of inflation through the various silver bills advocated in Congress. Wet soil had retarded planting, but clear skies allowed farmers to proceed with seeding. Reports from the South indicate that much new land is being planted to cotton because

of the provision in the Bankhead Bill that the tax on cotton produced over 10,000,000 bales would be imposed at the time of sale and not when ginned; so extra acreage is being put to cotton to offset any probable decrease in output due to adverse planting conditions.

Losses for the week were from 26 to 32 points. May closed at 11.59¢, compared with 11.87¢ last Saturday; July was 11.72 against 11.97; October 11.78 against 12.10; December 11.97 against 12.23; January 12.03 against 12.28; and March 12.10 against 12.38.

Last year at this time the United States went off the gold standard, and prices rose $6 a bale within 2 weeks, with near months reaching 8¢ and futures 9¢. In London the May position commanded a discount of 18d. last year over October, but it now is at a premium of 7d. Sterling was quoted at $3.90, against the present price of $5.17. At present cotton prices are about $1 a bale below the recent peak, against the $6 advance last year.

Cotton forwardings to domestic mills reached 115,000 bales last week, compared with 95,000 in the preceding week, and 111,000 a year ago. While takings are increasing, sales are slack, and prices of gray goods were shaded. Total forwardings to mills of the world are now 600,000 bales above those at the same time last year. Exports are about 70,000 bales below those of a year ago.

The Census Bureau reported March spinning activity at 102.9% of capacity, compared with 101.5% in February and 93.9% in March, 1933.

Speaking at the thirty-eighth annual convention of the American Cotton Manufacturers Association, George A. Sloan, president of the Cotton Textile Institute, stated that the cotton industry was in the best condition in the last 6 years. Asserting that the NRA has achieved its purpose, he pointed to the relation between stocks and production and unfilled orders at the end of March, which was "even better than at the end of March, 1929." He concluded by stating that "the present level of employment is higher [in the cotton industry] than it was in 1929, and the consumption of raw cotton is better than any year since 1929-1930."

Along with other markets cotton spent a quiet day on April 23, easing off from 8 to 10 points from Saturday's close.

On April 24 the heaviest sales since July, 1933, sent cotton down 20 to 31 points to the lowest prices since January 25. The decline was due to a variety of circumstances. May closed at 11.16¢; October 11.50; January 11.63; and March 11.75.

Cotton Fabrics

DUCKS, DRILLS, AND OSNABURGS. The demand for these goods eased up somewhat the past month, but prices are holding well. Production is being absorbed by deliveries against older orders placed during the first quarter. Renewal of demand is expected now that legislative conditions have cleared the situation

RAINCOAT FABRICS. The raincoat business is practically standing still between the spring and the fall seasons. Manufacturers are about ready to offer their new fall lines. The trade anticipates that the raincoat business for next fall will be one of the largest in the history of the business owing to the unusually attractive patterns and styles offered.

SHEETINGS. The unsettled conditions as regards cotton account for the reduced interest that has prevailed recently in the market for cotton sheeting.

TIRE FABRICS. The first 3 weeks of April prices held unchanged until April 20 when they declined. The present consumption of tire fabrics is considered subseasonal or routine, and the likelihood of marked increase in demand is problematical at present. Production by the companies is on the basis of about half their rated capacities.

WEEKLY AVERAGE PRICES OF MIDDLING COTTON

Week Ended	Cents per Pound
Mar. 31	12.11
Apr. 7	12.23
Apr. 14	12.13
Apr. 21	11.78

New York Quotations

April 25, 1934

	Cents
Drills	
38-inch 2.00-yard ..... yd.	$0.16
40-inch 3.47-yard	.09½
50-inch 1.52-yard	.22⅜
52-inch 1.90-yard	.18⅜
52-inch 2.20-yard	.15⅞
52-inch 1.85-yard	.18⅞
Ducks	
38-inch 2.00-yard D. F. ..... yd.	.16¼
40-inch 1.45-yard S. F.	.22
72-inch 1.05-yard D. F.	.31⅞
72-inch 16.66-ounce	.34⅜
72-inch 17.21-ounce	.36
MECHANICAL	
Hose and belting ..... lb.	.34½
TENNIS	
52-inch 1.35-yard ..... yd.	.24½
***Hollands**	
GOLD SEAL	
30-inch No. 72 ..... yd.	.19½
40-inch No. 72	.21½
RED SEAL	
30-inch ..... yd.	.17
40-inch	.18½
50-inch	.24½
Osnaburgs	
40-inch 2.34-yard ..... yd.	.13⅝
40-inch 2.48-yard	.12⅞
40-inch 3.00-yard	.10⅝
40-inch 10-ounce part waste	.15¾
40-inch 7-ounce part waste	.11
37-inch 2.42-yard	.13⅜
Raincoat Fabrics	
COTTON	
Bombazine 60 x 64 ..... yd.	.10½
Bombazine 60 x 48	.09¾
Plaids 60 x 48	.11¾
Plaids 48 x 48	.11¾
Surface prints 60 x 64	.12¾
Surface prints 60 x 48	.11¾
Print cloth, 38½-inch, 60 x 64	.06¾
Print cloth, 38½-inch, 60 x 48	.06¼
SHEETINGS, 40-INCH	
48 x 48, 2.50-yard ..... yd.	.11
48 x 48, 2.85-yard	.09⅝
64 x 68, 3.15-yard	.10½
56 x 60, 3.60-yard	.09
44 x 48, 3.75-yard	.07½
44 x 40, 4.25-yard	.06⅝
SHEETINGS, 36-INCH	
48 x 48, 5.00-yard ..... yd.	.06¼
44 x 40, 6.15-yard	.05¼
Tire Fabrics	
BUILDER	
17¼ ounce 60" 23/11 ply Karded peeler ..... lb.	.42¾
17¼ ounce 60" 10/5 ply Karded peeler ..... lb.	.37¾
CHAFER	
14 ounce 60" 20/8 ply Karded peeler ..... lb.	.42¾
12 ounce 60" 10/4 ply Karded peeler ..... lb.	.35
9¼ ounce 60" 20/4 ply Karded peeler ..... lb.	.42¾
9¼ ounce 60" 10/2 ply Karded peeler ..... lb.	.36
CORD FABRICS	
23/5/3 Karded peeler, 1 1/16" cotton .. lb.	.42¾
23/4/3 Karded peeler, 1 1/16" cotton .. lb.	.43¾
15/3/3 Karded peeler, 1 1/16" cotton .. lb.	.40¾
13/3/3 Karded peeler, 1 1/16" cotton .. lb.	.39¾
7/2/2 Karded peeler, 1 1/16" cotton .. lb.	.37¾
23/5/3 Karded peeler, 1¼" cotton .. lb.	.51¾
23/5/3 Karded Egyptian, Egyptian upper cotton ..... lb.	.54¾
23/5/3 Combed Egyptian ..... lb.	.58¾
LENO BREAKER	
8¼ ounce and 10¼ ounce 60" Karded peeler ..... lb.	.35

*Prices for 1,200 yards of a width or over.

Company Reports

Dewey & Almy Chemical Co., Cambridge, Mass. including subsidiaries. Year ended December 31: net income after depreciation, but before loss on investment, $175,816. After loss on the sale of an investment in Dartex Aktiengesellschaft of $62,327, there was a balance of $113,489. This contrasts with a deficit, after depreciation, of $154,558 in the preceding year.

Dominion Rubber Co., Ltd., Montreal, P. Q., Canada, (controlled by United States Rubber Co.) and subsidiaries. For 1933: net loss after expenses, depreciation, interest, subsidiary preferred dividends, and other charges, $21,129, against $595,655 loss in 1932.

Johns-Mansville Corp., 292 Madison Ave., New York, N. Y. Quarter ended March 31: net loss after depreciation, depletion, federal taxes, and other charges, $76,081, against a loss of $953,780 in the first quarter of 1933.

Master Tire & Rubber Corp., Akron, O. For 1933: net loss after taxes, depreciation, interest, provision for doubtful accounts, and other charges, $248,966, compared with $95,565 loss in 1932; net sales, $4,361,510, against $3,311,625 in the preceding year.

Pennsylvania Rubber Co., Jeannette, Pa. Year ended December 31: net profit after all charges, but before federal taxes, $128,443, against $30,045 on the same basis in 1932.

Seiberling Rubber Co., Akron, O., and subsidiaries. Year ended October 31: loss from operations, $2,962, after charges and depreciation, but before provision for loss on accounts receivable from Willys-Overland Co., loss on cotton futures and investments and restricted balances, all totaling $331,154. Including these charges, deficit for year was $334,116. For the preceding year the company reported net loss of $32,343 after interest, depreciation, and other charges.

United Carbon Co., Charleston, W. Va., and subsidiaries. Quarter ended March 31: net income after depreciation, depletion, and other charges, was approximately $300,000, equal after preferred dividend requirements, to 73c a share on 370,127 common shares, compared with $128,970, or 26¢ a common share, last year.

RUBBER SCRAP

THE demand for rubber scrap continues very good owing to the strength of crude rubber prices. Such few changes in market quotations are fractional and confined to red inner tubes, mixed auto tires with beads, beadless auto tires, and mixed black scrap. Export trade is good on inner tubes and solid truck tires.

BOOTS AND SHOES. Trade in boot and shoe scrap is fairly active with prices steady.

INNER TUBES. All grades are active and strong, with prices unchanged except for red tubes, down ¼¢ from a month ago.

TIRES. The market is active, and consumption increasing. Mixed auto tires with beads and the beadless grades are down 50¢ a ton.

SOLID TIRES. Solids are scarce, and collections poor. The market is very firm, with quotations unchanged.

MECHANICALS. Business in these grades is dull, and quotations unchanged except for mixed black quality, down ⅛¢.

HARD RUBBER. The consumer demand is strong for No. 1 stock. The price is quoted unchanged from that of one month ago.

CONSUMERS' BUYING PRICES

(Carload Lots Delivered Eastern Mills)

April 25, 1934

		Prices
Boots and Shoes		
Boots and shoes, black	lb.	$0.01¼/$0.01⅜
Colored	lb.	.01 / .01¼
Untrimmed arctics	lb.	.01 / .01¼
Inner Tubes		
No. 1, floating	lb.	.05½/ .05¾
No. 2, compound	lb.	.03⅝/ .03¾
Red	lb.	.02½/ .02⅝
Mixed tubes	lb.	.03¼/ .03⅜
Tires (Akron District)		
Pneumatic Standard		
Mixed auto tires with beads	ton	11.50 /11.75
Beadless	ton	16.50 /17.00
Auto tire carcass	ton	11.00 /12.00
Black auto peelings	ton	21.50 /22.50
Solid		
Clean mixed truck	ton	38.00 /40.00
Light gravity	ton	40.00 /42.00
Mechanicals		
Mixed black scrap	lb.	.01 / .01⅛
Hose, air brake	ton	13.00 /14.00
Garden, rubber covered	ton	11.50 /12.50
Steam and water, soft	ton	11.50 /12.50
No. 1 red	lb.	.01⅛/ .01¼
No. 2 red	lb.	.01 / .01¼
White druggists' sundries	lb.	.01¼/ .01⅜
Mechanical	lb.	.01¼/ .01½
Hard Rubber		
No. 1 hard rubber	lb.	.08¾/ .09

New Jersey

(*Continued from page* 50)

Luzerne Rubber Co., Trenton, states business for March and April was much improved over previous months'.

Pierce-Roberts Rubber Co., Trenton, operating with 2 shifts, finds the outlook very good.

Roxalin Flexible Lacquer Co., 35-40 36th St., Long Island City, N. Y., will take over the former plant of Jenkins Bros. (Rubber Division), Elizabeth, N. J.

Whitehead Bros. Rubber Co., Trenton, has enough orders on hand to keep the plant busy for some time. All departments are operating normally.

Charles E. Stokes, Jr., vice president, Home Rubber Co., Trenton, and Mrs. Stokes motored through Florida for several weeks.

Jos. Stokes Rubber Co., Trenton, is very busy at present. Secretary-Treasurer Milton H. Martindell recently returned from a business trip through the Midwest.

Edgar T. Phillips, deceased, formerly an official of the Crescent Insulated Wire & Cable Co., Trenton, in his will created a fund of about $200,000 to construct a hospital. Vice Chancellor Buchanan, however, granted permission to trustees of this fund to make immediate use of its income for purposes within the general intent of the bequest. It is planned the income, which averages about $8,000 a year, be spent for the support of an ambulance service, payments for the care of indigent patients from Lambertville and vicinity in Trenton hospitals, and the assistance of Red Cross activities and other health work in the community. Trustees declare that $200,000 is insufficient to erect and maintain a hospital.

EDITOR'S BOOK TABLE

Book Reviews

"Guttapercha und Balata. Their Substitutes and Mixtures." By Emil J. Fischer. 1933. Allgemeiner Industrie-Verlag G. m. b. H., Kommandan Strasse 15, Berlin-Lichterfelde, Germany. 184 pages, 6 by 9 inches. Illustrated. Indexed. Price 10 Reich Marks. Postage 0.4 R. M. extra.

This handbook condenses in brief space the botany, collection, commercial statistics, properties, uses, and technology of gutta percha, balata, and allied gums.

"Rubber and Automobiles." By Colin Macbeth. Foreword by F. W. Lancaster. Issued by The Rubber Growers' Association, Inc., 2, 3, and 4 Idol Lane, Eastcheap, London, E.C.3, England, Second Edition, February, 1934. Paper, 115 pages, 5½ by 8⅝ inches. Charts and comprehensive index.

The second edition of this handbook of rubber as applied in the construction and equipment of automobiles provides additional information on rubber suspension systems, sliding spring shackles, rubber bumpers which act as stabilizers, engine and radiator mountings, propeller shaft bushings, steering wheel horn rings, and latest type of leakproof moldings for coach bodies, door hinges, and rubber seatings. The book also contains additional illustrations dealing with the new items, as well as a frontispiece depicting rubber usage on the modern car.

New Publications

The Vanderbilt News. R. T. Vanderbilt Co., 230 Park Ave., New York, N. Y. The March-April, 1934, issue of this publication contains an article by A. H. Nellen on "The Automobile Tire as a Tire Testing Instrument" and one by C. R. Park on "The Automobile Tire of 1933 and Why It Gives Outstanding Service." Two articles from the Vanderbilt laboratories discuss respectively, "Accelerator Incompatibility in Adjacent Stocks" and "How and When to Use Bondogen." As usual this is an interesting issue.

"Banbury Mixers." Farrel-Birmingham Co., Inc., Ansonia, Conn. This illustrated bulletin is filled with new data conveniently arranged for reference on the use of the Banbury mixer for compounding rubber stocks, linoleum, asphalt products, paints, and other plastics. The book states clearly and graphically all the essentials of the Banbury as to design, construction, capacities, performance, control of batch uniformity, and other technical and economic advantages.

"Robertson Reminders." March, 1934. John Robertson Co., Inc., 121-135 Water St., Brooklyn, N. Y. This house organ describes some of the varied devices designed and built by the Robertson company for the operation of hydraulic machinery, which includes presses for stamping, extrusion, filtering, etc., as used in many industrial lines including soft metal working, rubber, and plastics.

"The World Rubber Position Chart." Economic Associates, 200 Hudson St., New York, N. Y. This chart discloses the dominant factors for 21 years of rubber production, stocks, consumption, and developments affecting prices from 1913 to 1934. It belongs to the "Commodity Economic Series" and employs a new principle which coordinates the major factors usually determining prices.

Canada

(*Continued from page* 56)

A. C. Rubber Mfg. Co., Ltd., 2311-2315 Cambie St., Vancouver, B. C., is successor to Anglo-Canadian Rubber Co., Ltd. The company manufactures household, surgeons', and acid gloves, one and 2-finger exploration and finger cots, and drainage tubing. Trade names are Handy, Hostess, Utility, Marquis, Medic, Major, and Penrose. Company executives include Charles H. Reed, president; Gilbert John Vaux, vice president; Donald E. Suttie, secretary; John R. Reed, treasurer; and George E. Maynard is the purchasing agent.

CLASSIFIED ADVERTISEMENTS

SITUATIONS WANTED

FACTORY MANAGER, 15 YEARS' EXPERIENCE manufacturing tires, tubes and molded goods, desires connection with responsible firm. Good background and good references. Address Box No. 360, care of INDIA RUBBER WORLD.

CHEMIST, B.SC., 13 YEARS' EXPERIENCE IN ALKALIS, HEAVY chemicals, organic accelerators and analyses, rubber and rubber reclaiming, etc., desires permanent position in rubber or allied industry. Address Box No. 359, care of INDIA RUBBER WORLD.

CHEMIST, B.SC., 5 YEARS' EXPERIENCE IN RUBBER TESTING, compounding, and production work. 9 years in other lines of chemistry. Available at once. Address Box No. 362, care of INDIA RUBBER WORLD.

GENERAL FOREMAN, PRACTICAL MAN WITH 20 YEARS OF experience in rubberizing of raincoats, auto cloth, hospital sheetings, shoe goods, cements, imitation leather, etc., would like to change. Up-to-date compounder. Excellent handler of men. Address Box No. 366, care of INDIA RUBBER WORLD.

PRACTICAL RUBBER CHEMIST, WITH LONG EXPERIENCE IN making all kinds of insulated wires, and especially capable of installing new plant, wishes to make a change. Address Box No. 367, care of INDIA RUBBER WORLD.

SITUATIONS WANTED—Continued

CHEMIST AND COMPOUNDER, WITH THOROUGH EXPERIENCE on mechanical goods, automotive parts, heels and soles, rubber gloves; also some experience with latex products. Familiar with all processing operations. Excellent references. Address Box No. 363, care of INDIA RUBBER WORLD.

SUPERINTENDENT OR ASSISTANT: FOR MOLDED RUBBER goods or rubber thread. 20 years' experience. Capable of taking entire charge of production as well as mechanical end. Address Box No. 364, care of INDIA RUBBER WORLD.

SPECIFICATIONS MAN, UP-TO-THE-MINUTE ON tire and tube compounding and specifications, thoroughly familiar with large tire problems as well as passengers. Have had 15 years of general plant experience with best firms. Address Box No. 361, care of INDIA RUBBER WORLD.

SITUATIONS OPEN

EXPERIENCED RUBBER COATED FABRICS CHEMIST BY MIDwest manufacturer. State experience and salary expected in reply. Address Box No. 365, care of INDIA RUBBER WORLD.

SALESMAN WANTED TO REPRESENT OLD ESTABLISHED manufacturer of molded flat goods, on commission basis. Preferably one with some experience in the druggists' rubber sundries line. Territory open: Central States, entire West Coast, and southern states below Virginia. State experience and previous connections. Address Box No. 368, care of INDIA RUBBER WORLD.

(Advertisements continued on page 77)

World Rubber Shipments—Net Exports

Long Tons—1934

British Malaya	Jan.	Feb.	Mar.
Gross exports....	55,055	57,867	58,515
Imports	21,184	19,688	26,470
Net	33,871	38,179	32,045
Ceylon	6,929	8,354	6,954
India and Burma..	1,531	775	....
Sarawak	1,197	1,005	1,360
British N. Borneo..	*750	750	....
Siam	1,290	1,264	1,363
Java and Madura..	6,513	6,706	....
Sumatra E. Coast..	8,974	10,277	....
Other N. E. Indies.	17,718	17,466	....
French Indo-China.	2,158	1,100	1,316
Amazon Valley	576	831	....
Africa	*200	*200	*200
Totals	81,707	86,907	....

*Estimate. *Compiled by Leather-Rubber-Shoe Division, Department of Commerce, Washington, D. C.*

British Malaya

An official cable from Singapore to the Malayan Information Agency, Malaya House, 57 Charing Cross, London, S.W.1, England, gives the following figures for March, 1934:

Rubber Exports: Ocean shipments from Singapore, Penang, Malacca, and Port Swettenham

March, 1934

To	Sheet and Crepe Rubber Tons	Latex, Concentrated Latex, Revertex, and Other Forms of Latex Tons
United Kingdom	8,504	273
United States	32,145	666
Continent of Europe..	9,653	325
British possessions....	733	24
Japan	4,872	34
Other countries	1,277	9
Totals	57,184	1,331

Rubber Imports: Actual, by Land and Sea

March, 1934

From	Dry Rubber Tons	Wet Rubber Tons
Sumatra	1,014	12,102
Dutch Borneo	923	8,099
Java and other Dutch islands.	521	126
Sarawak	1,323	37
British Borneo	333	43
Burma	380	47
Siam	636	727
French Indo-China	45	28
Other countries	75	11
Totals	5,250	21,220

Foreign Trade Information

For further information concerning the inquiries listed below address United States Department of Commerce, Bureau of Foreign and Domestic Commerce, Room 734, Custom House, New York, N. Y.

No.	Commodity	City and Country
*7,300	Surgical and household gloves, garden hose, and gas tubing	Nice, France
†7,311	Gas balloons	Madrid, Spain
*7,320	Balloons	Rangoon, India
*7,323	Washers	Toronto, Canada
*7,366	Surgical and hospital goods	Santa Cruz, Canary Islands

*Purchase. †Purchase and agency.

Rubber Trade Inquiries

The inquiries that follow have already been answered; nevertheless they are of interest not only in showing the needs of the trade, but because of the possibility that additional information may be furnished by those who read them. The Editor is therefore glad to have those interested communicate with him.

No.	Inquiry
1657	Manufacturer of equipment for making rubber soles.
1658	Manufacturers of prophylactic latex goods.
1659	Manufacturer of rubber printers' blankets.
1660	Manufacturer of cut rubber thread.
1661	Manufacturer of rubberized canvas or duck.
1662	Information wanted on "Bir Commercial Co.," or "Bir Goodluck Co.," manufacturer of the "Commercial Heavy" belt.
1663	Manufacturer of rubber rain capes.
1664	Manufacturer of rubber bases for dial telephones.
1665	Manufacturer of dipping machinery.
1666	Manufacturer of rubberized hair products.
1667	Manufacturer of rubber molds for plaster Paris objects.

World Rubber Absorption—Net Imports

Long Tons

Consumption	1933 Dec.	1934 Jan.	1934 Feb.
United States ...	29,087	39,504	41,065
United Kingdom.	8,003	5,688	8,586
Net Imports			
Australia	190	566	950
Austria	402	304	...
Belgium	1,360	2,173	...
Canada	1,773	1,721	1,854
Czechoslovakia ..	1,772	1,355	516
Denmark	147	114	108
Finland	63	221	24
France	5,415	6,843	7,373
Germany	4,933	6,057	5,490
Italy	1,029	...	...
Japan	6,865	5,628	...
Netherlands	213	381	287
Norway	51	136	75
Russia	2,400	...	...
Spain	776	484	...
Sweden	442	714	257
Switzerland	161	156	59
Others	*1,450	*1,450	*1,450
Totals	66,532	...	...
Minus U. S. (Cons.)	29,087	39,504	41,065
Total Foreign	37,445	...	...

*Estimate to complete table.
Compiled by Leather-Rubber-Shoe Division, Department of Commerce, Washington, D. C.

United States Latex Imports

Year	Pounds	Value
1931	10,414,712	$884,355
1932	11,388,156	601,999
1933	24,829,861	1,833,671
1934		
Jan.	2,521,961	$239,054
Feb.	1,983,210	193,732

Data from United States Department of Commerce, Washington, D. C.

U. S. Crude and Waste Rubber Imports for 1934

	Plantations	Latex	Paras	Africans	Centrals	Guayule	Manicoba and Matto Grosso	Totals 1934	Totals 1933	Balata	Miscellaneous	Waste
Jan. .....*tons*	44,988	973	182	61	..	..	..	46,204	31,110	73	693	32
Feb.	30,164	750	118	..	..	..	..	31,032	18,875	70	607	..
Mar.	43,204	901	450	..	..	50	..	44,605	27,879	169	415	157
Total, 3 mos., 1934.....*tons*	118,356	2,624	750	61	..	50	..	121,841	.....	312	1,715	189
Total, 3 mos., 1933.....*tons*	75,604	1,454	783	23	..	..	..	.....	77,864	73	1,835	1

Compiled from the Rubber Manufacturers Association, Inc., statistics.

Plantation Rubber Crop Returns by Months

	Borneo (26 Companies)		Ceylon (102 Companies)		India and Burma (21 Companies)		Malaya (338 Companies)		Netherlands East Indies—Java (60 Companies)		Netherlands East Indies—Sumatra (60 Companies)		Miscellaneous (8 Companies)		Total (615 Companies)	
1933	Long Tons	Index	Long Tons	Index	Long Tons	Index	Long Tons	Index	Long Tons	Index	Long Tons	Index	Long Tons	Index	Long Tons	Index
January	360	73.6	1,124	55.1	120	21.4	12,467	100.3	2,561	97.5	3,854	95.6	124	68.5	20,610	92.2
February	323	66.1	905	44.3	46	8.2	11,635	93.6	2,703	102.9	4,225	104.8	54	29.8	19,891	88.9
March	319	65.2	992	48.6	126	22.4	10,515	84.6	2,756	105.0	4,177	103.6	93	51.4	18,978	84.9
April	304	62.2	1,242	60.9	139	24.7	10,532	84.7	2,845	108.3	3,844	95.3	121	66.9	19,027	85.1
May	333	68.1	880	43.1	117	20.8	11,879	95.5	2,995	114.1	4,160	103.2	134	74.0	20,498	91.7
June	334	68.3	995	48.8	31	5.5	12,411	99.8	2,965	112.9	4,235	105.0	140	77.3	21,111	94.4
July	354	72.4	1,258	61.6	29	5.2	12,523	100.7	2,919	111.2	4,557	113.0	133	73.5	21,773	97.4
August	369	75.5	1,397	68.4	40	7.1	12,845	103.3	2,449	93.3	4,435	110.0	127	70.2	21,662	96.9
September	373	76.3	1,488	72.9	197	35.1	12,257	98.6	2,443	93.0	4,643	115.2	110	60.8	21,511	96.2
October	388	79.3	1,216	59.6	394	70.1	12,824	103.1	2,824	107.5	4,783	118.6	112	61.9	22,541	100.8
November	412	84.3	1,846	90.4	495	88.1	12,922	103.9	3,033	115.5	4,768	118.3	113	62.4	23,589	105.5
December	388	79.3	1,903	93.2	518	92.2	13,978	112.4	3,096	117.9	4,929	122.2	118	65.2	24,930	111.5
Totals	4,257	...	15,246	...	2,252	...	146,788	...	33,589	...	52,610	...	1,379	...	256,121	...
Monthly Average ...	355	72.6	1,271	62.3	188	33.5	12,232	98.4	2,799	106.6	4,384	108.7	115	63.5	21,343	95.4
1934																
January	371	75.9	1,404	68.8	403	71.7	13,001	104.6	2,820	107.4	4,408	109.3	129	71.3	22,536	100.8
February	352	72.0	1,110	54.4	122	21.7	12,129	97.5	3,034	115.5	4,722	117.1	117	64.6	21,586	96.5
2 months ending February,																
1934	723	...	2,514	...	525	...	25,130	...	5,854	...	9,130	...	246	...	44,122	...
1933	683	...	2,029	...	166	...	24,102	...	5,264	...	8,079	...	178	...	40,501	...

Note: Index figures throughout are based on the monthly average for 1929=100. Issued March 26, 1934, by the Commercial Research Department, The Rubber Growers' Association, Inc., London, England.

Classified Advertisements

Continued

BUSINESS OPPORTUNITIES

IMPORTANT SCRAP RUBBER FIRM APPLIES FOR representation of a firm of large production of this article, established in the United States. Apply to Juan Lopez, Cristina Brunetti, 20, Pasajes (Guipuzcoa), Spain.

Transmission-Belting of Woven Cotton and Laminated Rubber

Brazilian firm seeks exclusive sales representation for A-1 firm. Direct import. Belts of gray color. Send offers and samples of the different types, technical data, weights, and prices c.i.f. Santos. Our firm is long and well established. Considerable sales assured if merchandise and prices are suitable. A-1 references. Rodolpho Finger, Box 1881, Casa Mercedes, Sao Paulo, Brazil.

(*Advertisements continued on page 79*)

United States Statistics

Imports for Consumption of Crude and Manufactured Rubber

	*January, 1933		January, 1934	
UNMANUFACTURED—*Free*	Pounds	Value	Pounds	Value
Crude rubber	66,801,222	$2,213,828	107,436,221	$7,403,123
Liquid latex	1,882,928	100,900	2,521,961	239,054
Jelutong or pontianak	800,063	40,586	1,716,305	169,966
Balata	74,039	7,815	220,409	43,932
Gutta percha	64,636	5,058	135,520	11,672
Siak, scrap, and reclaimed	256,135	1,176	603,022	2,966
Totals	69,879,023	$2,369,363	112,633,438	$7,870,713
Chicle, crude *Free*	402,109	$115,745	643,859	$141,897
MANUFACTURED—*Dutiable*				
Rubber soled footwear with fabric uppers *pairs*	465,682	$60,445	210,352	$53,873
Rubber toys	.....	34,264	.....	28,587
Druggists' sundries, n. e. s.	.....	6,694	.....	6,805
Combs, hard rubber *number*	637,238	17,588	127,008	5,126
Golf balls *number*	11,196	2,787	4,128	1,058
Tennis and other rubber balls *number*	214,624	7,116	30,192	2,741
Tires *number*	14,416	67,781	313	1,046
Other rubber manufactures	.....	31,591	.....	34,491
Totals	.....	$228,266	.....	$133,727

Exports of Foreign Merchandise

RUBBER AND MANUFACTURES				
Crude rubber	3,211,106	$111,811	4,423,763	$352,116
Balata	12,729	2,595	11,097	2,025
Guayule	.....	.....	.....	.....
Gutta percha, rubber substitutes, and scrap	.....	.....	.....	.....
Rubber manufactures	.....	469	.....	1,351
Totals	.....	$114,875	.....	$355,492

Exports of Domestic Merchandise

RUBBER AND MANUFACTURES				
Reclaimed	291,355	$8,906	745,105	$35,485
Scrap	2,913,124	42,653	3,478,119	72,855
Rubberized automobile cloth, *sq. yd.*	45,426	20,166	65,234	31,691
Other rubberized piece goods and hospital sheeting *sq. yd.*	39,204	14,859	38,755	16,616
Footwear				
Boots *pairs*	5,445	10,266	8,690	21,297
Shoes *pairs*	6,882	4,592	20,451	13,714
Canvas shoes with rubber soles *pairs*	15,238	8,857	4,236	3,504
Soles *doz. pairs*	829	2,112	3,834	5,886
Heels* *doz. pairs*	27,998	16,002	24,236	12,213
Water bottles and fountain syringes *number*	11,033	3,765	12,618	5,062
Gloves *doz. pairs*	3,558	7,395	4,204	7,966
Other druggists' sundries	.....	21,350	.....	28,607
Balloons *gross*	19,789	18,111	25,048	22,674
Toys and balls	.....	1,967	.....	2,674
Bathing caps *doz.*	2,297	4,134	9,577	14,508
Bands	14,549	4,075	18,716	5,608
Erasers	20,598	12,126	15,551	7,678
Hard rubber goods				
Electrical goods	72,733	6,530	72,163	7,871
Other goods	.....	3,984	.....	8,569
Tires				
Truck and bus casings, *number*	8,856	146,482	14,905	232,595
Other automobile casings, *number*	61,664	444,184	64,803	455,942
Tubes, auto *number*	38,666	38,129	52,462	55,075
Other casings and tubes, *number*	1,355	3,372	1,328	3,170
Solid tires for automobiles and motor trucks *number*	432	11,585	626	18,053
Other solid tires	55,866	5,997	147,472	17,084
Tire sundries and repair materials	.....	25,545	.....	30,663
Rubber and friction tape	35,739	8,561	46,466	11,077
Belting	137,714	61,594	166,449	75,361
Hose	171,241	41,357	301,920	87,036
Packing	58,355	23,576	89,619	40,790
Thread	142,216	76,639	108,584	61,221
Other rubber manufactures	.....	66,979	.....	69,815
Totals	.....	$1,165,850	.....	$1,482,360

*General imports figures. Beginning January, 1934, these figures will be listed under the heading "Imports for Consumption."

Low and High New York Spot Prices

All Prices in Cents per Pound

	April		
PLANTATIONS	1934*	1933	1932
Thin latex crepe	13 1/16/14 5/8	3 3/4/5	3 15/16/4 1/4
Smoked sheet, No. 1 ribbed	11 3/4/12 5/8	2 13/16/4 1/4	2 13/16/3 1/8
PARAS			
Upriver fine	10 1/4/10 3/4	6 /6 1/2	5 /5 1/4

*Figured to April 25, 1934.

Rubber Goods Production Statistics

TIRES AND TUBES	1934 January	1933 January
Pneumatic casings		
Production *thousands*	...	1,806
Shipments, total *thousands*	...	2,077
Domestic *thousands*	...	2,011
Stocks, end of month *thousands*	...	5,789
Solid and cushion tires		
Production *thousands*	...	6
Shipments, total *thousands*	...	7
Domestic *thousands*	...	7
Stocks, end of month *thousands*	...	22
Inner tubes		
Production *thousands*	...	1,675
Shipments, total *thousands*	...	2,028
Domestic *thousands*	...	1,989
Stocks, end of month *thousands*	...	4,957
Raw material consumed		
Fabrics *thous. of lbs.*	...	7,899
MISCELLANEOUS PRODUCTS		
Rubber bands, shipments *thous. of lbs.*	303	189
Rubber clothing, calendered		
Orders, net *no. of coats and sundries*	13,811	11,574
Production *no. of coats and sundries*	21,777	24,409
Rubber-proofed fabrics, production, total *thous. of yds.*	...	2,052
Auto fabrics *thous. of yds.*	...	221
Raincoat fabrics *thous. of yds.*	...	799
Rubber flooring, shipments *thous. of sq. ft.*	...	188
Rubber and canvas footwear		
Production, total *thous. of prs.*	...	3,725
Tennis *thous. of prs.*	...	1,913
Waterproof *thous. of prs.*	...	1,812
Shipments, total *thous. of prs.*	...	3,156
Tennis *thous. of prs.*	...	1,814
Waterproof *thous. of prs.*	...	1,342
Shipments, domestic, total *thous. of prs.*	...	3,136
Tennis *thous. of prs.*	...	1,801
Waterproof *thous. of prs.*	...	1,335
Stocks, total, end of month *thous. of prs.*	...	15,351
Tennis *thous. of prs.*	...	7,008
Waterproof *thous. of prs.*	...	8,343
Rubber heels		
Production *thous. of prs.*	14,826	13,142
Shipments, total *thous. of prs.*	13,463	11,336
Export *thous. of prs.*	432	209
Repair trade *thous. of prs.*	2,833	2,433
Shoe manufacturers *thous. of prs.*	10,198	8,694
Stocks, end of month *thous. of prs.*	42,587	21,808
Rubber soles		
Production *thous. of prs.*	5,499	4,247
Shipments, total *thous. of prs.*	5,594	3,777
Export *thous. of prs.*	5	1
Repair trade *thous. of prs.*	388	275
Shoe manufacturers *thous. of prs.*	5,201	3,502
Stocks, end of month *thous. of prs.*	5,090	2,766
Mechanical rubber goods, shipments		
Total *thous. of dollars*	...	2,060
Belting *thous. of dollars*	...	382
Hose *thous. of dollars*	...	730
Other *thous. of dollars*	...	949

Source: *Survey of Current Business*, Bureau of Foreign & Domestic Commerce, Washington, D. C.

Imports by Customs Districts

	February, 1934		February, 1933	
	*Crude Rubber		*Crude Rubber	
	Pounds	Value	Pounds	Value
Massachusetts	5,870,633	$438,287	5,784,768	$192,358
New York	62,085,467	4,259,108	36,632,246	1,129,577
Philadelphia	2,496,611	164,315	1,040,251	35,604
Maryland	4,390,093	298,010	431,739	14,042
New Orleans	712,018	57,205	324,800	9,991
Los Angeles	2,706,935	193,544	6,878,528	206,780
San Francisco	144,900	11,781	44,998	1,658
Ohio	150,175	12,200	.....	.....
Oregon	.....	.....	11,200	491
Colorado	336,000	21,993	302,400	9,622
Totals	78,892,832	$5,456,443	51,450,930	$1,600,123

*Crude rubber including latex dry rubber content.

London Stocks, February, 1934

			Stocks, February 28		
LONDON	Landed Tons	Delivered Tons	1934 Tons	1933 Tons	1932 Tons
Plantation	6,301	5,123	39,728	37,127	65,902
Other grades	32	28	24	55	40
LIVERPOOL					
Plantation	*2,245	*1,217	*52,730	*52,990	*60,016
Total tons, London and Liverpool	8,578	6,368	92,482	90,172	125,958

*Official returns from the recognized public warehouses.